

ACCs

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LONDON, OCTOBER 29, 1960

SPEED AND  
SAFETY  
IN  
RAILWAY  
OPERATION

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## London Traffic Census

MOST interesting are figures contained in a special census of passengers and vehicles entering the West End and City which has been prepared by London Transport Executive. It compares conditions today with 1957, the year before the bus strike and it shows a 3 per cent (40,000) increase in the number of people travelling into the area to work, a figure now totalling 1,270,000; 90 per cent of them use public transport, and the bus services, although affected by worsening street congestion and shortage of crews, carry two-thirds of all road passengers. Nevertheless, fewer people are going by road despite a big increase in cars, motor cycles and scooters, which add to the congestion, although cars in West End parking meter zones have not increased. Most "commuters" — 927,000 — use the Underground and British Railways, where travel increased by 5 per cent due to some extent to people switching from bus services. The Underground carries the heaviest load—489,000—and British Railways 438,000. Bus passengers declined by 14 per cent to 222,000 in the morning peak, a change largely brought about by the irregularity and gaps in the running of the services. This was caused by increasing traffic congestion and by shortage of operating staff. The number of private vehicles of all types used by workers to travel to town in the mornings rose by 27,500. Cars alone increased by one-third from 46,000 to 61,000; motor cycles and scooters more than doubled from 9,400 to 19,300 and there were also 11,200 pedal cyclists, a 30 per cent increase.

## Saturation Near?

BUT, London Transport states, despite these extra 27,500 private vehicles adding to the congestion every morning the total number of passengers (344,000) travelling by road on public and private transport since 1957 actually dropped by one per cent. Rush-hour buses have been cut by 900 to 5,200 because of the fall-off in passengers, but they still carry nearly twice as many passengers as the 91,500 private vehicles entering Central London, and occupy under one-fifth of the road space. Private cars continue to carry on average 1½ people; two-thirds of the cars have only the driver and over three-quarters of the remainder have one passenger. The increase in private car traffic during the last year occurred before and immediately after the busiest quarter-hour of the morning peak; but there has been no increase during this peak fifteen-minute period, from 8.45 to 9 a.m., itself. This is significant as it suggests that saturation point of the central London street system is near. The census also reveals that the concentration of passengers using public transport at the height of the rush-hour is as acute as ever and there are no signs of it declining. One rush-hour passenger in six—a total of 188,000—boards his train or bus for home in the heaviest quarter-hour of the evening between 5.30 and 5.45. The morning rush is only a little less concentrated with one passenger in seven (174,000) entering central London between 8.45 and 9 a.m. With more and more office buildings going up in the West End and City, these figures spotlight the urgent need for more staggering of hours and the building of the proposed Victoria line, which will give relief across the central area, and with its big capacity could act like a great new arterial road from Victoria to Kings Cross and into the north-eastern suburbs, if London rush-hour travel is to be made any easier. Otherwise the "crush hour" will be even more acute and more uncomfortable for vehicle users of all categories.

## £30 Million of Rolling Stock

IT was stated this week by London Transport that the orders recently placed for 619 more cars of 1959 tube stock bring the total number of Underground cars now ordered, or in course of delivery, to nearly 1,700 and to a total value of more than £30 million. With the 246 District Line R stock cars and 91 cars of tube stock delivered since 1950, the 1,700 new cars will account for more than half the London Transport

## CURRENT TOPICS

fleet. This large-scale replacement of rolling stock is part of the general modernisation plans for the Underground, which include the four-tracking and electrification work on the Metropolitan Line and the resignalling and general improvement of the eastern end of the District Line with its new rolling stock depot at Upminster. The 1959 aluminium panelled tube stock, of which 1,208 cars are on order, is to be used on the Central and Piccadilly Lines, replacing almost the whole of the present stock on the Central Line and all but the 1938 stock on the Piccadilly Line. Of the 1,208, 589 cars are being built by the Metropolitan-Cammell Carriage and Wagon Co., Limited, 450 by the Birmingham Railway Carriage and Wagon Co., Limited, and

a meeting on October 19 the Productivity Council expressed unanimous agreement about intensifying the efforts which have been made by both sides of the industry during recent years, and that there is an urgent need to accept at all levels that the wider application of work study techniques can substantially improve the productivity of British Railways. The principles of work study are regarded by both management and trade unions at national level as a commonsense approach to ensuring the best use of both assets and manpower. Readiness to accept work study is an essential first step, and both the management and trade union members of the council are issuing a joint appeal for co-operation throughout the industry at all

Transport Authority gave a public demonstration on October 13, between 18th Avenue on the Sea Beach Line and New Utrecht Avenue, over a disused strip of express track. The train, with its so-called electronic motor-man and conductor, is intended to operate on the 2,700 ft. shuttle between Times Square and Grand Central, and is operated by coded signals transmitted through the rails from a tape machine in the control room. The sequence of door closing, train starting, acceleration and braking, door opening and destination indicator changing is predetermined. Equipment by General Railway Signal Company and Union Switch and Signal Company is employed at opposite ends of the three-car train in demonstration service. Not so spectacular, perhaps, but nonetheless valuable, is the extension of programme machine signalling on London Transport railways.

## B.E.A. to Frankfurt

WHEN British European Airways took over responsibility on August 1, 1946, for the operation in Europe of services previously maintained by the European Division of the British Overseas Airways Corporation it had before it a great deal of development to undertake. This was particularly the case as regards routes between the United Kingdom and Germany where British forces represented a substantial part of the occupying powers and where the wartime destruction of surface routes of communication made air transport especially vital. The Germans themselves were, of course, precluded from such operation but the British, French and United States airlines quickly settled down to providing facilities. Most properly B.E.A. concerned itself first with the links between London and Hamburg, and Düsseldorf, while U.S. airlines connected London with Frankfurt which was the major air base in the American zone. As soon, however, as machines became available the British operator started a London-Frankfurt service, first with Dakotas and successively with Vickers Vikings, Airspeed Ambassadors (Elizabethans) and Vickers Viscounts. Competition on the route has always been keen and was, indeed, increased by the advent of the revived Deutsche Lufthansa, although this operator now flies in pool with B.E.A. More threatening was the appearance of the large jet aircraft of P.A.A. and T.W.A. on European sectors of their transatlantic route. B.E.A. has met this rivalry boldly by introducing the de Havilland Comet 4B, and should reap its reward.

## West Country Floods

AN enterprising new firm of publishers, David and Charles (Publishers), Limited, of Dawlish, has produced a 2s. 6d. illustrated booklet on the Devon floods, the royalties from which will be paid direct to the flood relief fund. *Devon Flood Story, 1960*, is the work of several journalists who have combined to produce an account of all the aspects of the flooding in a convenient and permanent form. This will certainly be of interest to many outside Devonshire and besides being a record of events, there is an account of interruptions to transport undertakings and especially the railways, while causes and possible cures for flooding are analysed. The photographs, mainly contributed by newspapers, show dramatically the part played by motor transport in relief work and the effect on railways (and in the area near Topsham also the canal and the river) of the exceptional rainfall of six days which ended on Monday, October 3, which was one-tenth of the annual Dartmoor average. In the four days preceding October 3, 7.21 in. of rain fell in the area; whether the cause is excessive aorestation or over-zealous land drainage—as has become a matter of sharp controversy—it would be difficult for any flood protection measures to work in such circumstances.

## Automatic Trains

ALTHOUGH automatic train operation is hardly as novel as our ebullient Americans friends think, since it has been done recently as a tour de force in France and has been operating on the Post Office railway in London for over 30 years to designs originally evolved before 1914, it has now come to the fore in New York, where the trainmen's union is highly suspicious of it. The New York City

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169 by the Derby Works of British Railways. In due course, the Central Line will receive three trains of a new type; each will be made up of four new driving motor cars built by Cravens, Limited, and four trailer cars modernised at the L.T.E. Acton Works. Orders were placed in March last year with Cravens for 248 cars of a new design, specially evolved for the Metropolitan Line services now in course of extension to Chesham and Amersham. This light alloy stock is due in 1962; in June another 216 cars of this type were ordered, also from Cravens, to replace the Metropolitan Uxbridge stock. There are also among new stock three prototype aluminium panelled seven-car trains on the Piccadilly Line—one each by Metropolitan-Cammell, Birmingham R.C.W., and the Gloucester Railway Carriage and Wagon Co., Limited.

## Raising Railway Efficiency

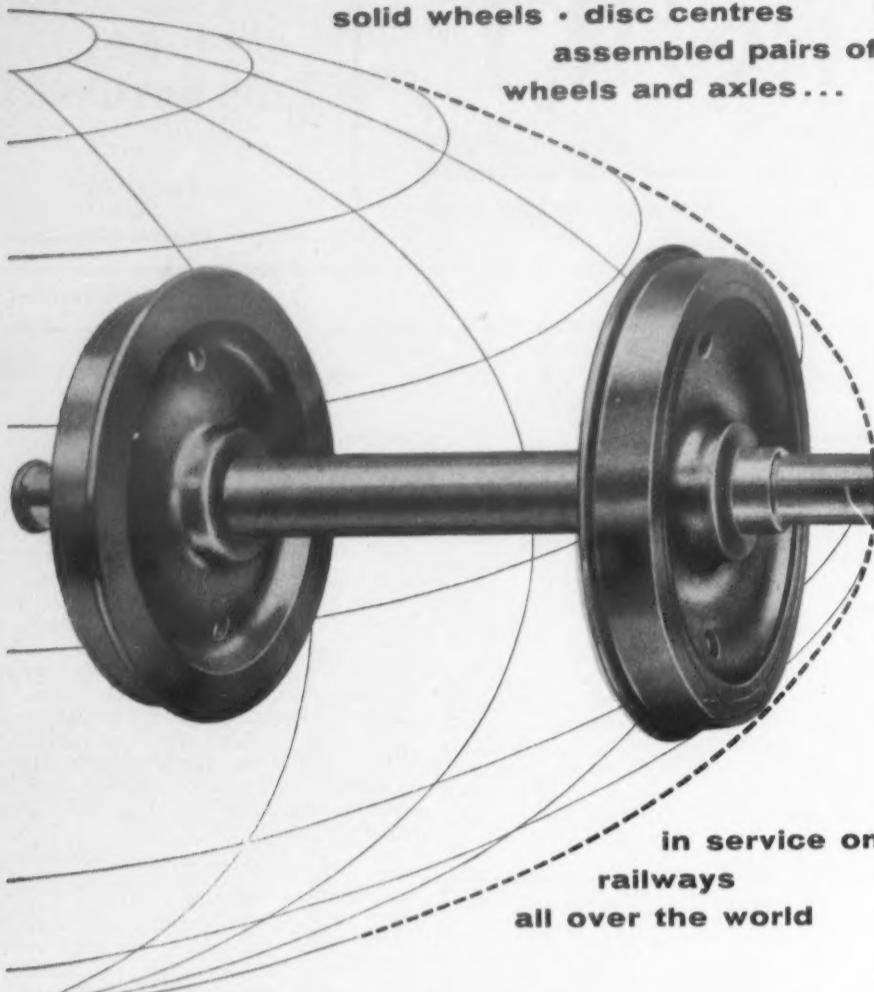
THE wage settlement between the British Transport Commission and the trade unions which followed the Railway Pay Committee of Inquiry (the Guillebaud Committee) was accompanied by a joint statement expressing a common determination to promote the highest efficiency on British Railways. Apart from modernisation of equipment and services, work study techniques are one of the most important methods by which this aim may be achieved. British Railways began to apply these techniques in 1947 and now 34,000 of the staff are employed on work studied jobs. Training centres have been established through which 1,300 British Railways' staff have received specialised training in work study methods, and are applying them throughout the system, either direct to current operations or by application in the planning stage of new projects. The British Railways Productivity Council, consisting of representatives of the trade unions and the Commission, has examined the problems still to be solved to enable work study schemes to be introduced more rapidly into the railway industry. At

## Stability Needed

GENIALLY presided over by Mr. L. W. Conibear, who paid a tribute to the services of the hon. secretary, Mr. J. W. Kerr, the ever-entertaining autumn luncheon of the Retired Railway Officers' Society was attended by 155 members and guests. Replying for the guests to the president's welcome, Mr. K. W. C. Grand, president of the Institute of Transport, said railways were a restless, developing industry—probing and always being probed—but a reasonable quiet was needed to carry a progressive plan to fruition. As Lord Stonham had said in a paper to the Road and Rail Association, long-term investment was imperative to a plan; vacillation and uncertainty caused by changes of Government policy were in the very worst interests of the nation, the railways, the public and industry in general. It was essential that a long-term assurance be given, not only of the railways' investment allocations, but also of the continued support and confidence of the State. Proposing "The Retired Railway Officers' Society," Mr. A. B. B. Valentine, chairman of London Transport, referred to the serious study the British Transport Commission had given the question of supplementing pensions. As to inquiries, he felt that good might come of them if they paved the way for a financial reconstruction which would enable the railways to stay out of the red. Sir John Elliot replied on behalf of the Society and Mr. W. H. F. Mepsted proposed the health of the president.

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*The Editor is prepared to consider contributions offered for publication in MODERN TRANSPORT, but intending contributors should first study the length and style of articles appearing in the paper and satisfy themselves that the topic with which they propose to deal is relevant to editorial requirements. In controversial subjects relating to all aspects of transport and traffic this newspaper offers a platform for independent comment and debate, its object being to encourage the provision of all forms of transport in the best interests of the community.*

We desire to call the attention of our readers to the fact that Russell Court, 3-16 Woburn Place, London, W.C.1, is our sole London address, and that no connection exists between this newspaper and any other publications bearing somewhat similar titles.

#### The Railway Image

PRESIDENTIAL address to the Railway Students' Association of the London School of Economics by Mr. J. R. Hammond, general manager of the Western Region, had as its theme the general picture of railways in the public mind, or the railway image. He reviewed the broad picture of public relations, in the light of the fact that to the daily Press bad news is news and good news rather dull stuff, the railways' management relations and the relation of the production to the sales force, recognising that what the railway produced was a service. One of the factors in the railway picture in the public mind was labour troubles. "During this year," he said, "there have been two threatened strikes which did not materialise. And there was a heartfelt sigh of relief throughout the country. Whatever their cause, they engender a feeling of uncertainty as to the reliability of our services. There is no doubt that even the threat of labour trouble causes traders to look elsewhere for their transport, which often cannot be arranged on a short-term basis, with the result that traffic is lost for some time or perhaps for good." Nevertheless the railway industry suffered comparatively little from wildcat or irresponsible strike action. A further factor which helped to colour the railway picture was being continually "in the red." It was unavoidable that the resultant inquiries into railway affairs, however proper and commendable in themselves, tend to heighten the feeling of uncertainty in the public mind as to the future of the railways.

#### A Critical Atmosphere

THE publicity given to road development gives the general public a further impression — however false — of a material change of emphasis in the overall transport outlook. The balanced view, of course, should be that each form of transport must receive the support necessary to enable it to discharge its proper function in the best interests of the national economy. The result of these and other factors, in Mr. Hammond's view, was that the railway picture, or image, in the public mind was not satisfactory; railwaymen did themselves no good by trying to ignore that fact. Staff enthusiasm is inevitably, if subconsciously, affected by the atmosphere of criticism, complaint and uncertainty as to the future of the industry; railway people seldom get credit for either

the many difficulties which are successfully overcome or for the large amount of satisfactory service rendered to the travelling and trading public. "It is one of the most important functions of management, at all levels, to demonstrate and encourage an atmosphere of confidence in what is being done now for the future of our industry—a future in which we also have complete confidence," he declared, "and I would add that the trade unions, it seems to me, have a similar responsibility."

#### Recognise the Difficulties

FIRST essential for management at all levels to ensure a satisfactory "image" of the railway in the public mind is to recognise the present position. The acute shortage of key staff in the Midlands, on the London Midland and Western Regions, justifies, for example, quite exceptional measures by Mr. David Blee and Mr. Hammond, involving long hours and very hard work by a large investigating staff which has resulted in a healthy measure of improvement, though much remains to be done. Many difficulties can be put right without a major operation of this kind, although others will not be satisfactorily solved until modernisation is completed. Meanwhile, as Mr. Hammond indicated, there is a great deal that can be done to improve services by better use of existing resources of manpower and equipment. Stationmasters, goods agents, yardmasters and supervisors, as well as the district officers, can and must play their part. Decentralisation of management is no doubt helping in a situation calling for leadership. In a time of great changes experience is not enough. At least equally important are: a willingness to test existing traditions; the capacity to re-think existing practices and processes in relation to present and future requirements and the availability of new techniques and equipment; a flexibility of mind in regard to the place of the railways in the total transport scheme; and a communicable enthusiasm for changes which are proved to be necessary.

#### New Methods

THESE qualities are, of course, already present, but they should be manifest at all levels. Work study is an example of what can be accomplished in a field which did not appear very favourable for application to the widely diverse activities of the railways. But the faith and confidence of the pioneers in this venture have been amply justified. There must be an unremitting search for improved methods and for maximum utilisation of equipment and staff, which incidentally hold out the prospect of a more attractive financial reward. Much of the routine work on the railway, such as paybills, stores accounting, traffic audit and analysis and statistics, is already covered by the more simple type of electronic calculators, but the field is widening in the use of computers in connection with actual traffic operations. Experiments are currently taking place in such applications as timetabling and wagon control with considerable savings in the empty movement of rolling stock and the improvement of services. Other research vital to the railways includes the re-planning of passenger services, elimination of those which are unremunerative and are better covered by alternative means of transport and the scientific arrangement of passenger schedules which, whilst improving the public service when actual and potential traffic justifies such improvement, ensures maximum economic use of staff and of the expensive equipment which is being provided under modernisation. Secondly, there comes the re-orientation of the freight policy. Already modern marshalling yards have been planned and some built; the concentration of freight terminals is under way and a further stage is the progressive planning of freight schedules. The magnitude of these tasks requires no elaboration. As Mr. Hammond pointed out, they will involve some degree of disturbance to staff and public alike. But they are essential if, in these days and in the future, the railway is to discharge its full economic function. The knowledge of them will help to create the image (not the "mirage") of a vital and efficient service, not only with the public but also among the staff.

#### NEWS SUMMARY

ELectric train services on the north side of the Clyde based on Queen Street Low Level (to be known as Queen Street Electric) will begin from Helensburgh, Balloch and Milngavie on the west and north of Glasgow to Springburn, Bridgeton and Airdrie and the east on November 7 after an official opening on November 5. Over 160 drivers have been trained at Hyndland electric rolling stock maintenance depot and on a recent Sunday rehearsal 170 trains were operated.

The £45 million Transbay tube for the proposed San Francisco rapid transit project would be four miles long and 35 ft. in diameter; it is proposed to lower it to a ditch in the bed of the bay in 62 prefabricated steel sections, each 300 ft. long, and it is believed it would be proof against earthquakes.

The headquarters of the Birfield group of companies is to be moved from November 7 to 20 Hill Street, W.1. The Automotive Division will be located in Birmingham and the Railway Division in Sheffield.

The Railway Conversion League has issued its evidence to the Stedford Committee as *The Future of the Railways*, price 5s.; it comprises the familiar special pleading for replacement of railways by motor roads.

The three railway trade unions have indicated their dissatisfaction with the secrecy of the Stedford group's report to the Government and their agreement with Sir Toby Low's committee that the Transport Tribunal should be abolished.

The Committee of Public Accounts urges a tighter control of motorway estimates by the Ministry of Transport to keep final costs closer to those budgeted for.

#### AIDS AND BRAINS

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## ALWEG SYSTEM IN LATEST FORM

To Serve Turin Exhibition in 1961

### PROBABLE PROJECTION INTO SUBURBS

IN an endeavour to provide an economical rapid transit system for modern cities, Dr. Axel Wenner-Gren, the Swedish-born international industrialist, initiated research into what is now known as the Alweg system in 1951. It is essentially a monorail, particularly

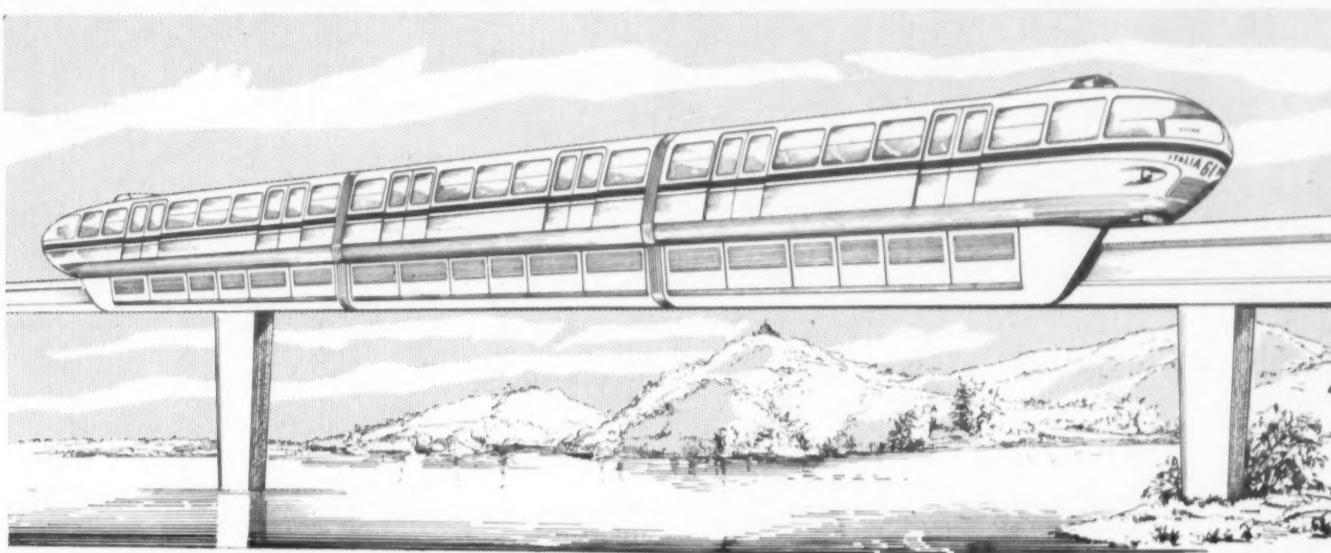
2 in. long) with recessed conductor rails in the lateral surfaces. The beams were prefabricated in an adjustable permanent mould specially designed for this purpose and using the "vacuum concrete" process. This method of beam fabrication ensures rapid production, as well as the utmost exactitude and economy, even of beams for super-elevated

systems were incorporated. One of these is a flexible switch consisting of an elastic light metal hollow beam section which is bent in its entirety into the curved line position. An illustration of a three-way point appears on this page. The other is an articulated switch with two laterally movable beam sections forming a polygon when in the

designs compared with earlier layouts of Alweg carriages.

Even for a double track line the pylons of an elevated Alweg line require only about 13 sq. ft. of ground surface, if spaced at intervals of about 50 feet. In addition, the height of the pylons can easily be adjusted to local inequalities of the ground, thus offering considerable advantages for the siting of an Alweg track without incurring appreciable expense. The selection of material for the prefabrication of the pylons (steel or reinforced concrete) depends primarily on economic considerations and is furthermore governed by town planning and architectural problems. Any shape and height desired can be chosen.

The great capacity for negotiating gradients which, together with the accelerating and braking characteristics, is obtained by means of the good static coefficient of friction between the running tyres and the reinforced concrete beam, enables a more favourable siting of Alweg lines, such as



The three-coach Alweg train now being built for the Turin exhibition line; when this train joins others for operation of the suburban line the ends designed for the exhibition train by Ghia will be removed.

suit by its design for saving space on the ground to city elevated railways, but capable of erection in all sorts of terrain. The trains are carried on a single beam by pneumatic tyred wheels; the car is supported on the monorail by horizontal guide wheels which bear on the vertical sides of the beam.

The original design and a two-fifths full-size train were described in MODERN TRANSPORT of December 20, 1952; we now give some up-to-date details of current thought and show an illustration of a train now being built in Germany for a line in the area of the Turin Exhibition, to be held to mark the centenary of united Italy from spring to autumn, 1961. This Turin railway is intended to be extended later into the city centre in one direction and towards the outer suburbs in the other, so that the present venture, on which work started at the beginning of September, represents the first Alweg scheme intended for city public service transport. It is, however, now announced from Tokio that a licence and advice contract for the building of Alweg monorail lines has been signed with Hitachi in connection with a proposal to build an Alweg from central Tokio to the airport over a 15-mile route.

#### First Essays

The Alweg system first became known to the public on October 8, 1952, when, after development and construction work lasting about a year, the first test train, built on two-fifths full scale, was demonstrated on an oval test track about a mile long at Fühlingen, near Köln. Some period was then devoted to technical research and further development of this new transport system. Three further experimental trains were built and subjected to exhaustive tests over many thousands of miles, the experience gained thereby being carefully evaluated. New production methods for the

curves and transition curves which must be twisted in two planes.

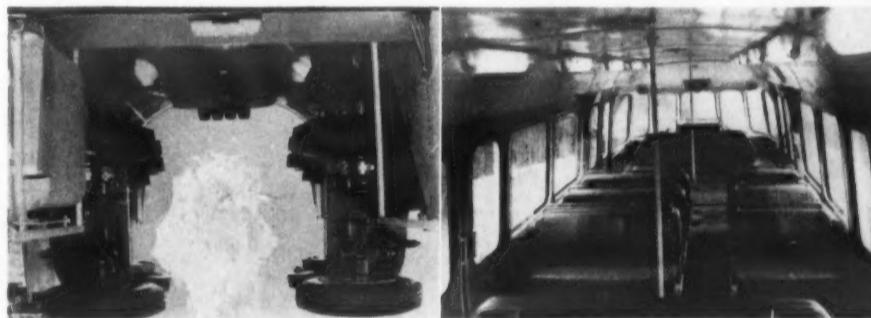
#### Beam Construction

On the single-line section of the first full-scale Alweg track, groups of six beams are joined together to form structural units, each 295 ft. in length. The two centre beams of this unit are supported by a fixed pylon. The remaining ends of the six beams

shifted position. This type of switch is intended primarily as a shunting switch for use in depots, maintenance shops and so on.

#### Rolling Stock

The Alweg train for rapid urban transport now operating at Köln-Fühlingen comprises two power-driven cars with a total capacity of about 200 passengers. Each car is 36 ft. long, 9 ft. 10 in.



Alweg train removed from the carrying beam, showing running wheels above and guide wheels at sides; right, interior of the experimental train at Fühlingen near Köln

rest on floating pylons which move with the expansion of the beam. The expansion compensating gaps for the six beams are provided at the beginning and the end respectively of each 295-ft. unit. The adjacent beams of a double track section rest on a common fixed T-shaped pylon.

These T-shaped pylons are made of reinforced concrete or of steel. All pylons of the first full-scale Alweg track have been prefabricated and erected on the site with the exception of the T-shaped pylons made of reinforced concrete. The transport and assembly of the prefabricated elements for the beamway of the full-size track at Fühlingen were

wide and about 13 ft. high, and is equipped with two undercarriages. Each of these undercarriages has one driven supporting axle with twin pneumatic tyres and four horizontally arranged guiding and stabilising wheels, likewise with pneumatic tyres. The tyres used are of standard commercial vehicle dimensions. As a safety measure, additional emergency rollers fitted with solid rubber tyres are provided to take up contact with the running surfaces of the beam in the event of a tyre becoming damaged.

Not only the rubber tyres, but also the remaining equipment of the vehicles, such as the motors,

End-on view of Alweg train at a station

use of shorter inclines when changing from underground to elevated tracks or the insertion of short steep sections instead of long roundabout routes, in congested city areas.

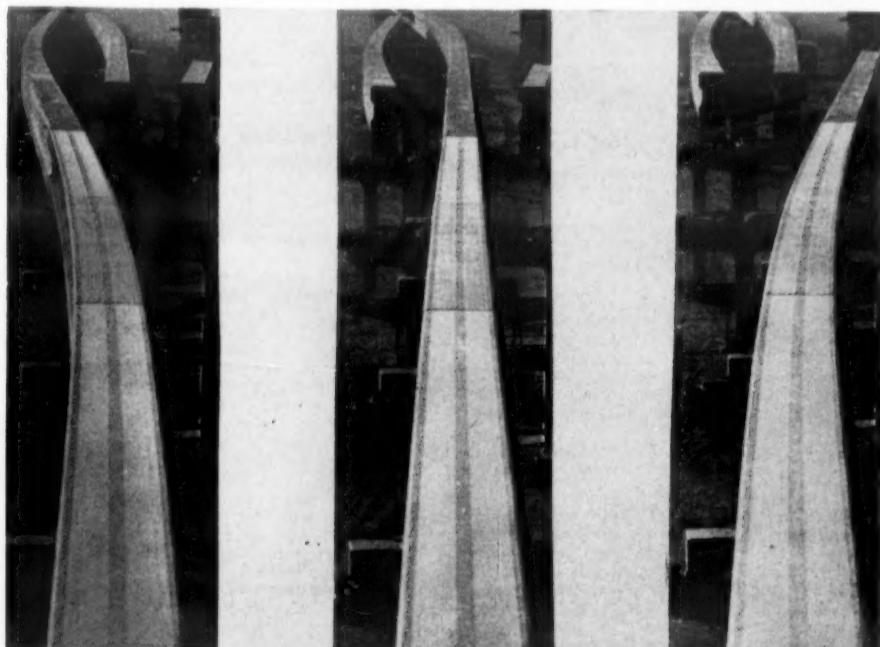
#### Operating

The Alweg train can be composed of any number of cars according to traffic requirements. The smallest train unit consists of two cars; the number of driving axles depends on the actual operational conditions. Any number of Alweg train units can be coupled together.

On May 1, 1960, an agreement for the construction of an Alweg line in Turin was signed by the Comitato Celebrazioni dell'Centenario dell'Unità d'Italia. This Alweg line will deal with public transport within the Exhibition Italia '61 from May 1, 1961, with an Alweg three-car unit. The line will be 1.2 km. in length with two stations and is intended to be the first part of a line of 11 km. in length which is to be built after the exhibition from the centre of Turin to the suburb of Moncalieri.

#### Exhibition in Turin

The International Exhibition Italia '61 will take place from May 1 until October 10, 1961, under the patronage of the President of the Republic of



Flexible girders employed to form a three-way point at Fühlingen and, right, the experimental train crossing the Köln-Düsseldorf road

supporting structure were developed, so that at the end of 1956 a start could be made on the construction of a full-scale track one mile in length. It is on this track that the first two-car train to be developed for rapid urban transport has been available for demonstration purposes since July 23, 1957, and has impressed many people concerned with city transport for its rapid acceleration and braking and its steady riding.

This full-scale Alweg track comprises sections of single and double track, together with the necessary switches. It is of the elevated type and made of prefabricated reinforced concrete elements. The track consists of prefabricated reinforced concrete beams (4 ft. 7 in. high, 2 ft. 7 1/2 in. wide and 49 ft.

carried out with equipment giving a rate of assembly progress of up to one beam section per hour.

#### Longer Spans and Points

In addition to the untensioned reinforced standard beam section mentioned above, such as was used for the first test track, a beam section of pre-stressed concrete has been developed of a length of about 65 ft. In conjunction with longitudinally sited cantilever supports this pre-stressed concrete beam section can be used for spanning widths of up to 100 ft. For greater spans the standard beam sections are supported by special structures.

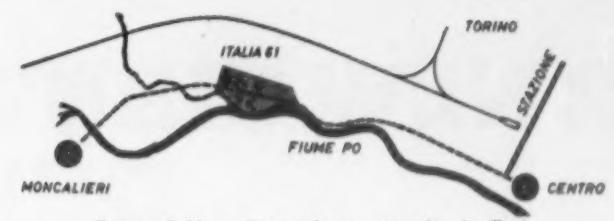
In the first Alweg test track two different switch

electrical controls, brakes with compressors, etc., are all standard items from the normal production lines of the manufacturing firms. The first full-scale Alweg train operates on 1,200-volt direct current. The four motors, each of which drives one supporting axle of the Alweg train by means of gears and each of which has an output of 75 kW, enable a maximum acceleration of 3.4 m.p.h. per second. Smooth starting is ensured by a multi-notch automatic controller. Braking is effected electrically; furthermore, each supporting axle is provided with a disc brake. The brakes are designed for a maximum deceleration of 5.6 m.p.h. per second with a fully-loaded train. The running gear takes up less space in the car body in the latest

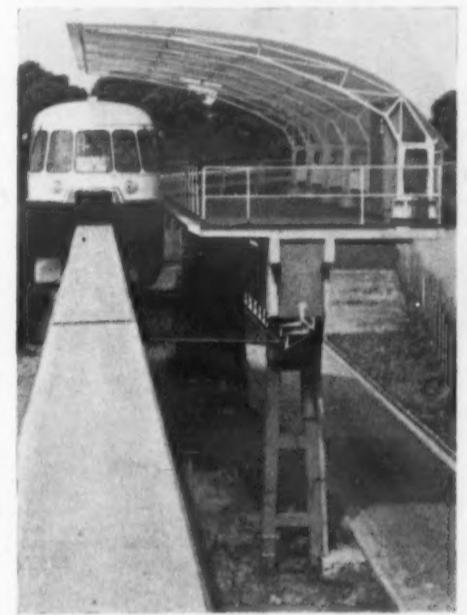
Italy to mark the occasion of the centenary of the independence of Italy in 1861. It includes several exhibitions: an historical exhibition, the International Labour Exhibition, the Italian Regional Exhibition, the Southern Italy Development Fund Exhibition and the International Floriculture Exhibition. The exhibition ground is situated in the south of the city, extending mainly alongside the Corso Polonia.

The first section of the elevated Alweg line begins at the intersection of Via Garibaldi and Corso Polonia, near the southern entrance of the exhibition. An elevated Alweg station will be erected at this end of the line. On a planted strip

(Continued on page 12)



Route of Alweg line under construction in Turin



## 2 NEW GIANTS BY DUNLOP

**WITH GIGANTIC BUILT-IN STRENGTH...**

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### LORRY—BUS—COACH

## All-Round Bus Wage Claims

THE full implications of the London busmen's wage offer drawn up last week are that the average increase in earnings is estimated to be 28s. 7d. per week and that parallel pay claims may be expected shortly in respect of provincial employees. The basic wage increase in London is 18s. per week, and this alone will increase the differential between London and the provinces to at least £1 17s. 6d. per week. To the 18s. is added 7s. per week to include elements for early starts and late finishes, Saturday afternoon working, and either a safety bonus or a payment for completing scheduled Saturday duties.

### Traffic Area H.Q. Moves

OFFICES of the Metropolitan Licensing Authority and Traffic Commissioner will be moved on November 14 to Stewart House, 23-25 Soho Square, W.1. Public inquiries will be held on the fifth floor of this building.

### Roll-Up Tanks Approved by B.R.S.

AFTER rigorous testing in adverse conditions, British Road Services has approved the Dunlop collapsible liquids container (roll-up tank) for movement on its vehicles. A 2,000 gal. tank has been carried loaded on a Leyland Comet articulated 10-tonner.

### Business and Depot Change Hands

AFTER a denial of its takeover in July this year, Albert E. Ewer, Limited, which has A-licences for 34 vehicles, has now been absorbed into the Davis Brothers haulage group after all. Its garage at Shoreham is the new home of Meastrans, Limited, whose acquisition by Transport (Bristol), Limited, was reported last week.

### B.R.S. Change in London

THE Hayes and Slough general haulage branch of British Road Services, located at Hayes, Middlesex, has been closed and the Welsh trunk services and other traffics it handled have been transferred to Brentford branch, renamed Brentford—Hayes branch. The branch manager at Brentford is now Mr. D. Cameron, who has also transferred from Hayes.

### Café Must Close at Night

AN all-night pull-up, the Old Manor Café, at Blackwater, Hampshire, which has been functioning as such since the spring of 1959, has been ordered by the High Court to close between 11.45 p.m. and 6 a.m. on an injunction sought by a nearby resident who complained of the noise of



Forced convection refrigeration is employed in two Thames Trader 7-ton vans with Mann Egerton bodies to carry Walls products at around 30 deg.F.; right, Leyland Comet articulated tanker (A.P.V. tank on Taskers chassis) delivers lager to Northern Ireland

diesel engines, doors slamming, shouting and disturbances. Mr. Justice Salmon said that the noise of diesel lorries at night was a nuisance to people living within 100 yd. of the café. The sale of petrol is allowed to continue.

### G.V. Output Going Strong

PRODUCTION of commercial vehicles continues to run strongly ahead of 1959 figures. In September, 44,729 commercial vehicles were produced compared with only 26,000—27,000 in each of the preceding two months and 30,316 in September, 1959. Production of buses and coaches remained static at 1,904, compared with 1,921 in September of last year. In the first three quarters of this year commercial vehicle output totalled about 325,000, compared with 353,000 for the whole of 1959. On that basis the figure for 1960 could easily exceed 400,000 units.

### Overseas Timetables

AMONG the library material owned by the Omnibus Society are very large numbers of bus and coach timetables, brochures, statistical data and annual reports from undertakings in all parts of the world. These are cared for by Mr. F. Schultz, 43, Johnston Avenue, Bootle, 20, Lancs., the Society's overseas corresponding member. The material covers 17 Commonwealth countries, 25 in Europe, Argentina, Japan, and the United States, among others, and in some cases the coverage is remarkably complete. Foreign chassis manufacturers' literature is also available. Members of the Society as far apart as New Zealand and California have contributed to this remarkable collection.

### Delivery in Meter Zones

MEMBERS of the T.R.T.A. are being issued with a useful new guide as to how their drivers should behave in the Mayfair parking meter zones where traffic wardens are on duty. If drivers are handed a ticket for an obvious offence, such as leaving the vehicle where there was a thick yellow ban line at the kerb there is little room for argument, says the T.R.T.A., but if the alleged offence was open to doubt, as for example the warden saying that the driver was not unloading or had exceeded 20 min., the T.R.T.A. should be consulted as to whether the charge should be defended. The guide contains an imaginary street plan, showing where loading and unloading is permitted in parking meter zones.

### B.R.S. and Clearing House Rates

BOTH British Road Services and the National Conference of Road Transport Clearing Houses announced rates increases this week, following the action taken by the Road Haulage Association. B.R.S. is to "adjust its rates so as to obtain an overall additional revenue of 10 per cent" from November 1. Its last general increase in rates was in May, 1957. B.R.S. is now faced with substantial wage and salary awards.

The National Conference of Road Transport

Clearing Houses recommends its members to make an increase of 10 per cent in their rates as from November 1. The Conference says it has been concerned at the substantial decline in road haulage rates for long-distance traffic against the steadily mounting costs both in overheads and in operation during the last three years, which costs have so far been absorbed by operators. The largest single advance in wages ever given to driving staff is now about to come into operation. The Conference believes that continued maintenance of efficient vehicles and service can only be assured when the industry is operating economically.

### "Normal User" ad Nauseam

MOST licensing authorities now prefer something a little more precise than "general goods, Great Britain" as the normal user in applications for A-licences. On the other hand, they may well become apprehensive about printing costs if all applicants were so precise—and prolix—as the one whose normal user takes up 18 lines of Metropolitan area *Applications and Decisions* (normally five or six lines is the average). It enumerates more than 60 classes of goods and specifies numerous counties and towns to be served—all by one vehicle of about six tons capacity. Actually this was an out-of-time application and the licensing authority has granted a short-term licence pending decision. The normal user?—"General goods, Great Britain."

### Ceylon Board Accounts Queried

THE Auditor-General of Ceylon, Mr. L. A. Weerasinghe, has refused to certify the accounts of the Ceylon Transport Board for 1959 on the ground that expenditure amounting to Rs. 47,000,000 has not been satisfactorily accounted for by the board. The Auditor-General makes the following points in his report: the expenditure of Rs. 19,631,937 on repairs to and maintenance of buses could not be satisfactorily vouchered for in audit. It has not been possible to verify that fuel to the value of Rs. 16,839,976 was actually consumed by the board's buses on their scheduled services. The wide discrepancies between the stocks of bus fare tickets as appearing in the ticket issue register at the depots and the verified stocks have not been satisfactorily accounted for. Other items are also commented upon.

### News of Two Trolleybus Systems

FOLLOWING the delivery of four new double-deck buses, several alterations to Ipswich Corporation Transport routes took place on October 9. The remaining trolleybus workings to Colchester

Road and Sidegate Lane have been withdrawn and work has commenced on the removal of the overhead wiring. On Sundays all trolleybus services are replaced by buses and the depot at Priory Heath is closed all day. In addition on weekdays about 50 per cent of the workings on the Rushmere Heath—Whitton route have been taken over by buses. The Mexborough and Swinton Traction Co., Limited, states that, subject to grant of road service licences, the trolleybuses jointly operated with Rotherham Corporation between Rotherham, Mexborough and Conisbrough will be replaced by buses commencing on March 27, 1961. At the Conisbrough end of the route an extension of route to the Windmill and Ellerslack housing estates is planned. The trolleybus route between Manvers Main Colliery (Wath upon Dearne) to Conanby will be abandoned in favour of buses, probably early in the new year.

### Blackpool Takes Decisions

REDUCTION to six in the number of standing passengers permitted on Blackpool buses and trams was decided at a recent meeting of Blackpool Transport Committee. The decision, which would operate throughout the year, is subject to the approval of the town council. The present standing limits are eight on buses and 10 on trams. The platform staff had asked for no standing outside peak periods. The committee also decided to convert the Lytham Road route between Manchester Square and Squires Gate from tram to bus operation. Ten new double-deck buses costing £52,000 will be needed. It was also agreed to recommend staff reorganisation in two departments of the transport undertaking.

One proposal is to make a single post of engineer for both buses and trams, with two assistants, one for buses and one for trams. The other proposal is a post having charge of buildings and the permanent way, with an assistant official. The first proposal arises from the impending retirement in January of the chief engineer for trams, Mr. Stanley Holmes, after 43 years' service. The second comes about through the retirement in December this year of Mr. R. Boar, after 40 years' service, from the post of permanent way engineer.

### Bus and Coach Developments

R. Savage, Kirkmuirhill, applies for the Stonehouse (Cross) Quarter (Thinacre Colliery) service of J. McGowan. T. F. Macdonald, Lochboisdale, South Uist, seeks to withdraw his Daliburgh—East Kilbride service.

Widnes Corporation applies for a number of new services and for the revision of others dependent upon grants which would have the effect of extending routes which at present terminate at the Transporter Bridge to Runcorn Bus Station over the new bridge.

The following London Transport County Area bus route amendments were introduced October 12: 303 withdrawn on Monday; 303A curtailed at Potters Bar on Sunday evenings (a 7d. fare is now available on Sunday on Green Line coaches between Bell Bar and Potters Bar); 307B double-decked, 318 diverted in Hemel Hempstead via St. Johns Road following removal of Heath Park railway bridge; 315 extended to Bessemer Road in Welwyn Garden City; 316, 383 withdrawn on Sunday; 389 operates Pescotts—Hitchin on Sunday; express route 811 withdrawn; 405 curtailed Saturday and Sunday evenings at Merstham, and Sunday morning at Redhill; 438B withdrawn; 449, 456 withdrawn on Sunday; 853 and 853A diverted at Three Bridges via Hazlewick Road.

MODERN AIRWAYS and COMMERCIAL AVIATION SECTION

## I.C.A.O. WORK IN CONGO

### Under Difficult Circumstances

ACTIVITIES of the International Civil Aviation Organisation in the Congo during the first two months of the present emergency have been described in a report by the Secretary-General, Mr. R. M. Macdonnell, to the council of I.C.A.O.

After the Republic of the Congo gained its independence in July of this year, civil disturbances resulted in a large scale exodus of many of the Belgian nationals responsible for the maintenance of technical services in the country; these included aviation technicians such as air traffic controllers, radio mechanics, radio operators and other staff engaged in operating civil aviation services. The Congolese Government then asked for technical assistance from the United Nations, and the Security Council requested the specialised agencies "to render to the Secretary-General such assistance as he may require" in meeting the needs of the Congo.

On July 25, when the director of the I.C.A.O. technical assistance bureau first arrived in Leopoldville, the most pressing problem was to ensure the uninterrupted operation of Leopoldville Airport (N'gili). For this purpose the immediate help of the civil aviation authorities in Brazzaville (across the river from Leopoldville) was sought and given; personnel from Brazzaville were flown to Leopoldville each morning and returned at night. At the same time efforts were made to retain the remaining Belgians in their civil aviation posts, but deterioration of relations between the Congo and Belgium resulted in the departure of practically all Belgian staff. This has required the recruiting by I.C.A.O. of technically trained replacements.

#### Foreign Technicians

The technical assistance mission of I.C.A.O. in the Congo has two functions: operations and training. It has been necessary to provide technicians from abroad to perform air traffic control, communications and other technical tasks on an emergency basis. It is also necessary to train Congolese to take over these responsibilities as soon as they are able. I.C.A.O. estimates that about 56 technicians will be needed—not counting requirements in Katanga Province—in order to carry out the objectives of maintaining operations and training Congolese. If Katanga is included this number will rise to about 80. The present number of I.C.A.O. technicians in the Congo is 26.

Thus far the help which has been given has been limited to the three major airports of Leopoldville, Stanleyville and Luluabourg where traffic is heaviest. The eventual plan is to have I.C.A.O. experts at 21 airports throughout the country, combining advisory and training functions with operational duties, until sufficient nationals have been trained. Of the other major airports, Elisabethville is operated by Belgians, as are Usumbura and Bukavu airports which are in Ruanda-Urundi, a trust territory of Belgium, while U.N. military forces and Congolese administer the remainder on a caretaker basis. Owing to the lack of roads and railroads, quick transport in the Congo is wholly dependent upon aviation and the Congo has no fewer than 162 aerodromes of all classes. Leopoldville is in Category 1; seven other airports are in Category 2; eight in Category 3; 29 in Category 4, and the rest are local aerodromes and useable only in dry weather for aircraft up to weights of 5,000 kg.

#### U.N. Aircraft

The country is served domestically by two airlines, Air Congo (formerly Sabena) and Air Brousse, a bush operation. In addition the U.N. has been given aircraft and crews to assist in its operations and these supplement the normal services of the established carriers. Leopoldville is

the main airport for international flights and with the U.N. traffic the number of movements here has increased sharply. A general agreement has been reached between the United Nations and the Congolese Government to formalise the position of U.N. personnel working in the Congo. Funds for the programme will come from a special Congo emergency fund which it is expected that the general assembly will establish during its present session in New York; for the time being the costs of the operation are being paid from the reserve fund of the United Nations.

A Congolese Director of Civil Aviation, Mr. Jean Kimbulu, was recently appointed. Mr. Kimbulu has had 28 years of experience in various clerical positions in the government service of the Belgian Congo. The I.C.A.O. Chief of Mission is endeavouring to aid the Director of Civil Aviation to meet the manifold civil aviation problems which have arisen during the period of the emergency. The I.C.A.O. team is made up at present of one civil aviation adviser (chief of mission), one senior air traffic services expert, 13 air traffic controllers, six radio operators, four radio technicians, and one office management expert. These 26 people have been recruited as follows: eight from Canada, six from Tunisia, four from France, two from Spain, two from the United Arab Republic, one from the Federal Republic of Germany, one from Greece, one from Sweden, one from the United States.

#### Security

One of the major problems confronting not only the I.C.A.O. mission but all other agency missions has been that of personal security. The United Nations has accepted a heavy responsibility in employing personnel for service in the Congo. In order to ensure the safety of the I.C.A.O. staff, the commander of the U.N. forces in the Congo issued a directive to the local U.N. commanders in the field requesting them to give protection to the I.C.A.O. staff working at the airports. A "carte de protection" was also devised with the approval and over the signature of the special representative of the secretary-general of the U.N. and issued to all personnel, including I.C.A.O. staff, working at the airports. This document recognises that the continued operation of civil aviation is essential to the U.N. mission in the Congo and calls upon all those in authority to give necessary passage, protection, and assistance to the bearers.

Although the I.C.A.O. mission is working with a small staff it has already rendered valuable service to aviation in that country, mainly by keeping Leopoldville Airport in operation at all times. A flight information centre has been organised and is in operation at Leopoldville Airport to discharge the responsibilities laid down in the I.C.A.O. regional plan for this centre. During the emergency the responsibilities of the telecommunications directorate for maintaining all radio and navigation aid facilities in the country have been seriously affected and, by a decision of the Minister of Communications, responsibility for maintenance and operation of radio aids to navigation and the maintenance of all radio facilities installed at the major airports has been transferred to the Civil Aviation Directorate, which is to say the I.C.A.O. mission.

A major effort is being made by the I.C.A.O. Technical Assistance Bureau to locate qualified French-speaking technicians of nationalities acceptable to the Congo Government. In view of the general shortage of civil aviation personnel throughout the world this has proved to be a difficult task but it is expected that the requirements of the Congo will be fully met within the near future. The urgency of this task is emphasised by the imminent approach of the rainy season during which flying is rendered hazardous without reliable ground services.

## I.A.T.A. Fares for 1961-62

### FIRST ATTEMPT AT TWO-YEAR COVERAGE

SCHEDULED airlines have completed negotiations for agreements on international fares and rates for most world routes for an unprecedented period of two years, the International Air Transport Association has announced. Principal new features of the fares pattern proposed for government approval by the I.A.T.A. traffic conferences at Cannes included substantial reductions in lower class fares across the North and Central Pacific and between North and South America. New excursion and family fare discounts, and special low rates for parties travelling together will also be introduced on several routes to promote greater tourist traffic, particularly in the off season.

On the cargo front, world wide rates were renewed at existing levels pending a special I.A.T.A. conference beginning January 23 which will discuss new approaches to cargo rating in order to encourage greater bulk traffic over North Atlantic, European and related routes. Mr. V. H. L. Dubourcq, senior vice-president of K.L.M. (Royal Dutch Airlines) and chairman of the conferences, said that "the airlines unanimously recognise a need for bold and imaginative measures to fill the cargo holds of the new jet transports and the growing number of all cargo aircraft in scheduled service. The industry is on the threshold of the great cargo breakthrough and we hope to give it a firm push."

#### Two Year Term

In the past, international fares and rates agreements have been valid for 12 months, but if governments agree, the Cannes resolutions are for the most part scheduled to become effective next December 1 or April 1 until March 31, 1963. Carriers will be able to request consideration of specific changes at the end of 12 months if there is material change in circumstances. Mr. Dubourcq hailed the two-year agreement as "a major step towards greater stability in the industry and a sign that we are nearing the end of the revolutionary transition from propellers to jets. Political developments in some areas and the normal stresses of a dynamic trade may not make it possible to eliminate the 1961 conference entirely and certainly no onus will attach to any carrier asking for new discussions a year from now. But the new scheme should considerably compress the sessions, reduce their costs and effect savings in tariff publications and sales procedures.

#### Pacific Fares

Liberalised rules for round trip air/sea journeys were adopted which will make these combined trips more attractive. New economy class services will be offered over the Northern and Central Pacific at fares 14 per cent below existing tourist fares beginning on December 1. Thus, the lowest year-round fare between the United States west coast and Tokyo will drop to \$435 on jets and \$405 in propeller aircraft. First class fares will go up slightly to \$700 one way on the jets with propeller aircraft taking either a \$50 lower fare differential or offering more liberal seating accommodation at the jet prices. Special group rates for parties of 35 or more passengers travelling together will cut the Northern and Central Pacific fares a further 30 per cent. They will be valid between September 1 and February 28 eastbound and November 1 and February 28 westbound. Cargo rates will not change. Fares within Asia and Australasia were fully agreed with little alteration.

#### Western Hemisphere

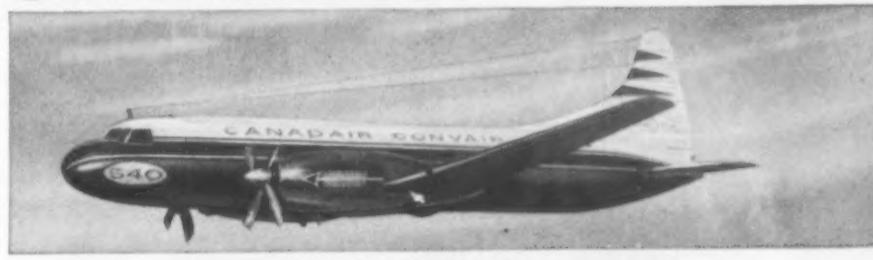
A new fare table for the Western Hemisphere envisages reductions of as much as 35 per cent in the lower class fares for long hauls between North and South America with the New York—Buenos Aires return fare being reduced to \$599 on jets and \$538 on propeller aircraft from \$934 and \$878 respectively. First class fares would be increased by up to 10 per cent.

New family fares, providing a third discount for each additional member of the family group, will be

(Continued on page 12)



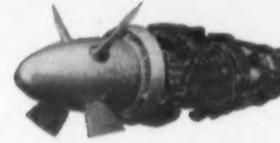
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## RAILWAY SMALLS TRAFFIC

### Modernised Central Depot at Hull

ONE of the British Railways goods depots at Hull—formerly known as English Street—has been enlarged, modernised and equipped with up-to-date mechanical handling appliances. Now it becomes one of the seven main freight centres provided for in the North Eastern Region plan for streamlining its freight facilities. It is now known as the Hull Central goods depot and was formally opened by Major J. B. Upton on October 21. The new depot handles smalls consignments for the whole of the city including the docks as well as a wider area including Brough, Willerby, Beverley, Withernsea and Hornsea. Frequent collection and delivery services, provided by a fleet of 123 road vehicles based on the new depot, will link every part of this area with daily express freight-train services running to and from all parts of the country.

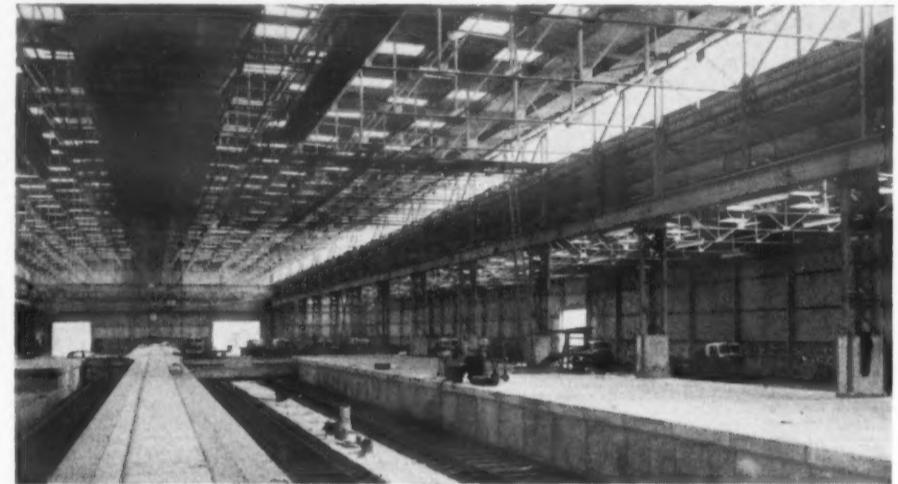
#### Simplification

In the days when collection and delivery services to traders' premises had to be given by horse-drawn road vehicles, there were—in what is now the North Eastern Region—roundly a thousand railway freight depots handling smalls. More recently, all this traffic has been concentrated at fewer than a hundred such depots and now it is planned to reduce these until the whole of the traffic is con-

long and 3 ft. wide and is set into the deck of an 8-ft. wide raised platform running the length of the shed. It is controlled from a panel at one end of the shed and is capable of a wide variation in speed according to requirements of the traffic. Emergency stop buttons are placed along it at convenient intervals. The conveyor platform serves 58 motor vehicle berths at the dispatch end and 20 railway wagons at the reception end. The use of two sidings, one on either side of the conveyor, avoids the interruption of work which would otherwise occur during the movement of railway wagons. Incoming traffic for shipment is segregated and a third siding serving a separate platform has been provided especially for handling this important traffic. This platform is 25 ft. wide, 228 ft. long and has berths for 10 railway wagons and 29 motor delivery vehicles.

#### Incoming Procedure

Outside the reception end of the shed incoming loaded railway wagons are accommodated on five holding sidings. From there they are fed to the discharging berths by six electrically-powered capstans in conjunction with eight strategically-positioned fairleads. These have a 2-ton pull and a maximum controlled speed of working of 150 ft. per min. The whole area is floodlit from special



New shed for incoming traffic at Hull Central goods depot viewed from slat conveyor, which links 20 wagon berths with 58 lorry stances

centrated in 29 mechanised and modern freight terminals, seven of which (including Hull Central) are to be main concentration centres. Radiating road motor services will provide the link with the traders' door.

The old goods depot at English Street was built more than 80 years ago by the Manchester, Sheffield and Lincolnshire Railway Company (later Great Central Railway Company) to serve the city and its immediate suburbs. In more recent years it has handled only outgoing traffic, incoming traffic being dealt with at Railway Street. Industrial development has brought heavy increases in the rail traffic passing to and from the city and port of Hull and facilities at the old depots had become inadequate, costly in operation, and generally unsatisfactory. With the development of the plan for concentrating

#### EQUIPMENT SUPPLIERS

Cowans Sheldon and Co., Limited, Carlisle, capstans and fairleads.  
Herbert Morris, Limited, Loughborough, overhead crane.  
Paterson Hughes Engineering Co., Limited, London, mechanical slat conveyor.  
Ponsone, Sims and Jefferies, Limited, Ipswich, mobile crane.  
General Electric Co., London, floodlighting gantries in capstan area, concrete column and lighting fittings for yard lighting.  
Yale and Towne Manufacturing Co., Limited, Wolverhampton, fork-lift truck.

freight traffic in fewer but bigger and better terminals, the provision of a completely modernised depot became urgently necessary. At the same time this presented an opportunity to introduce up-to-date and efficient handling methods with consequent improvement in services and reduction in working costs.

#### Modernisation

The existing shed at English Street has been modernised and equipped for handling all outgoing smalls traffic, whilst a completely new shed (alongside), equipped with a mechanical slat conveyor system, has been provided for handling incoming traffic. Built with roof and walls of corrugated asbestos sheeting supported on a steel framework, the new shed is 460 ft. long and 150 ft. wide, providing a covered area of 70,000 sq. ft. The mechanical slat conveyor, installed in a narrow decking, runs the full length of the shed. Traffic will be discharged from incoming railway wagons and loaded on to the conveyor on which it will travel to the road delivery vehicles. A 30-cwt. overhead travelling crane has been provided to handle the heavy and awkward articles.

In the modernised outgoing shed, the out-dated practice of manhandling traffic from road vehicles to railway wagons by hand barrows over raised decking has been superseded by the more efficient and economical method of direct loading. Six sets of rails, capable of accommodating 108 wagons, have been provided, alongside which the incoming road collection vehicles perambulate to permit direct handling from road vehicle to rail wagon. From this shed railway wagons leave daily giving direct services to some 65 destinations in various parts of the country.

#### Offices

At the entrance to the depot (in Kingston Street) a new block of offices has been provided for the goods agent and his staff to replace former war-damaged accommodation. This new two-storey building provides 5,160 sq. ft. of office space. In addition, an older office block has been renovated and converted into a combined amenities and office building. The amenities include a modern mess-room, lavatory and washing facilities and a locker room. Other modernisation works include the conversion of part of the former Railway Street goods depot into a shed for handling full-wagon-load traffic susceptible to damage by wet and the provision of new cattle pens for the loading and reception of rail-borne livestock.

The electrically-driven slat conveyor is 452 ft.

overhead gantries spanning all the approach tracks. Delivery services are, in the main, given by articulated motor vehicles. Three trailers are allocated to each powered unit and as each trailer becomes fully loaded it is moved from the conveyor to a parking area by a separate vansetting unit. A 30-cwt. overhead travelling crane for awkward and heavy articles spans the main bay of the shed and runs its whole length. The sidebay contains a lock-up compound for valuable articles and parking space for 43 road vehicles, with access to an outside standage and washing area on the south side of the shed.

#### Modernised Outgoing Shed

The converted shed for outgoing traffic has had its raised platforms removed; two additional concrete roadways, 30 ft. wide, have been laid. There are now six sidings for 18 wagons each and three roadways with covered accommodation for a total of 108 wagons. In addition, siding accommodation outside the shed provides holding room for 152 loaded and empty wagons, while the nearby Belle Vue sidings act as a further reserve for 253 wagons. A new road entrance has been made at the north-east corner of the building nearest the main entrance to the depot. The west gable has been rebuilt, using prestressed concrete beams and the design is such that the shed can in the future be extended if required.

Some 80 wagons are loaded daily in the shed to about 65 regular destinations, each line of wagons serving a particular area. In the line for the Scottish area the well-known Humber-Clyde freight express is formed. A certain amount of transfer traffic in railway wagons to and from local railheads and private sidings in the Hull zone is also dealt with in this shed. Mechanical handling equipment includes a 1-ton battery-electric mobile crane with a searcher jib for lifting heavy or awkward articles into covered vans and a 1-ton capacity battery-operated fork-lift truck.

#### Lighting

Cold cathode lighting fittings which need little maintenance and produce a high level of illumination with low power consumption are installed throughout the depot. The tubes are totally enclosed in dust-proof enclosures, the lower portions of which are composed of formed opal Perspex. Altogether 373 Trilite II cold cathode light fittings, each with an average light output of 7,500 lumens, are installed throughout the depot. Roadways and yard are illuminated by 250-watt colour corrected mercury vapour lanterns mounted on 25-ft. prestressed concrete columns.

To accommodate the increased circulation of road vehicles serving the two main sheds, a new roadway has been built from Kingston Street entering the yard near the new shed under the overbridge that carries Manor House Street into the dock area. The roadway is 12 ft. wide and caters for incoming traffic only; there is thus a one-way circulation system inside the yard.

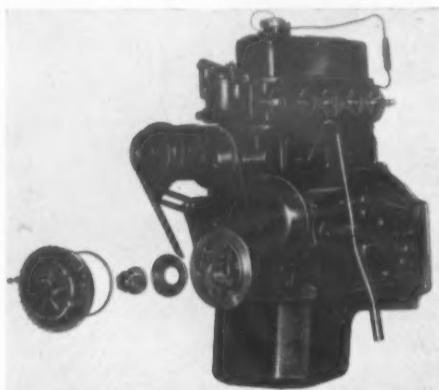
The major portion of the civil engineering and building work, alterations to the existing shed, foundations and floors to the new shed, alterations to existing office accommodation, construction of cattle dock, end loading dock, roadways, permanent way, etc., has been carried out with direct labour by the staff of the district engineer, Hull. The main contractor for the new received shed and the covered area was Octavius Atkinson of Harrogate. The new office block was constructed by Quibbells of Hull. The whole of the work has been carried out under the supervision of the chief civil engineer, North Eastern Region, York.

Sir Henry Spurrier, chairman and managing director of Leyland Motors, Limited, will be the principal speaker at the 14th annual dinner and dance of the Institute of Road Transport Engineers, to be held in the Piccadilly Hotel, London, on November 14.

## ROAD VEHICLE INDUSTRY

### New-Type Engine Oil Filter

**R**IIGHTS in a new type of oil filter as now fitted to some Fiat and Simca car engines have been acquired by Vandervell Products, Limited, and the principles and advantages claimed are illustrated on that company's stand at the Earls Court Motor Show. The new unit is a full-flow centrifugal filter which is fitted at the front of the crankcase and driven directly by the crank-shaft. The revolving casing can incorporate a Vee pulley and thus replace the normal fan-drive pulley; it can also incorporate a crankshaft vibration



The full-flow centrifugal filter incorporating fan-belt pulley opened up to show components

damper and finning for purposes of oil cooling. Advantages claimed for the system are elimination of renewable elements and external pipe connections, efficiency shown by prolonged tests to be two-and-a-half to three times higher than that of conventional filters and reduced engine wear.

#### K.L. Demister Improvements

**D**EMISTER ports supplied with new Key-Leather heaters are now of a new adjustable rubber design that can be faced in any direction, permitting tubing to be run directly to the windscreen and eliminating intermediate fittings.



Mud beaters: A Commer loaded to 10 tons 16 cwt. at speed on the M.I.R.A. cross-country track and, right, an R-type four-by-four Bedford has eliminated bogging delays in service with John C. Nicholls on a Hants building site

Neater and quicker installation and more efficient demisting are claimed. New heater-demister units have been introduced by the company for the B.M.C. 1½- to 4-ton FG range and new Bedford TK range vehicles, for the Bedford-Dormobile, Karrier Bantam and Commer ½-ton van and a new fresh-air unit for the Thames Trader range. New literature on these developments is available from Key-Leather Co., Limited, 5 Urswick Road, London, E.9.

#### Havana Blast Tests Melloroid Fabrics

**W**HEN the French ammunition ship *La Coubre* exploded in Havana, Cuba, a number of Leyland-M.C.W. Olympic buses (part of an order for 200 in course of delivery) nearby on the quayside were severely damaged. Nine of these were shipped back to Britain for repair. Assessors studying the damage saw that blast, burning debris and falling masonry had shattered windows, buckled doors and breached coachwork, but that Melloroid p.v.c. leathercloth used as upholstery fabric for the seating was almost unscathed, apart from a few punctures and some charring. Moreover, the Melloroid fabric, a low flammability upholstery material made with Geon p.v.c., by Mellowhides Products, Limited, had acted as a fire blanket. When cushioning material had been gutted, the Melloroid had been charred but remained largely intact. The effect of weather and salt-spray exposure on the return journey was also assessed and although all windows had been broken and removed because of damage, the Melloroid was unaffected. A spokesman for the exporting company claimed: "After a quick dust over, most of the Melloroid leathercloth was as good as new."



Intact Melloroid seat upholstery in a blast-damaged bus

legal gross weight of 24 tons; and the Super Straight single-axle, which is of pressed steel assembled by bolting, for payloads of 10 and 12 tons.

#### Rust Neutraliser Preventative Paint

**N**AMED Kurust, a combined rust neutraliser and preventative primer paint has been developed by A. Sanderson and Co., Limited, Hull, Yorks. A number of characteristics claimed for the new material make it appear particularly attractive for use on transport vehicles. For example, the combination of neutraliser and primer paint suitable for all types of finishing material results in savings of time and labour. Moreover, it is not only unnecessary to remove all rust before application but it is said that Kurust depends on the presence of a thin residue of rust for hardening and keying of a protective film on the metal. It is also claimed that the efficiency of the material is not impaired by application to a damp surface and that it provides extreme water and chemical resistance that is impervious

to welding and cutting temperatures, which in fact bond Kurust to the metal. Sample quantities are available from the manufacturer's Hull headquarters or from its London depot at 14a Tower Bridge Road, London, S.E.1.

#### Multi-Purpose Extreme Pressure Grease

**N**OW being distributed in the United Kingdom by Bardahl Products, Limited, is a lithium-based all-purpose grease offering extreme pressure lubrication over a temperature range from 32 to 300 deg. F. The grease contains a non-corrosive E.P. additive and is suitable for all general chassis lubrication, water pumps and for farm equipment.

#### In Situ Wheel Balancing

**T**WO new Alemite electronic road-wheel balancing machines introduced by Stewart-Warner, Limited, Harlow, are portable and are designed for use without the necessity of removing wheels from the hubs. They will detect kinetic and dynamic unbalance in the whole rotating assembly, including wheels, tyres, trim and brakedrums. The machines are for mains-voltage operation and the larger, Model 7057, will handle wheels of vehicles up to light lorries.

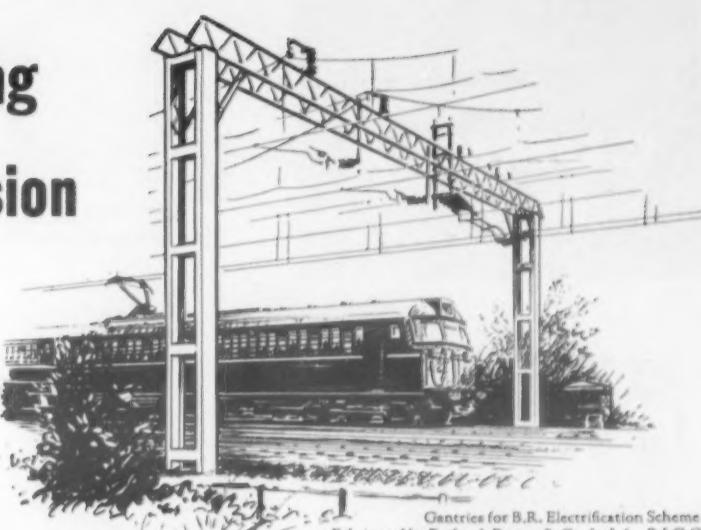
#### Work Started on New Albion Plant

**W**ORK was scheduled to start on building the new factory at Dumbarton for Albion Motors, Limited, on October 1. The new plant will employ about 1,200 and will be erected on the site at Gooseholm Farm, which the firm recently bought. The new factory, which should help in solving local unemployment problems, will make vehicle components. The main works of Albion Motors at Scotstoun, Glasgow, will continue operations as usual. Leyland Motors, Limited, announced last week that 350 new houses are to be built on a site near Gooseholm Farm.

#### Automatic Gasomatic

**R**EMOTE control from the driver's seat of injection of Gasomatic cold-starting fluid for petrol and diesel engines is now possible with a new unit introduced by Start Pilot, Limited, 27 Ashley Place, London, S.W.1. The unit—No. 21—comprises a standard aerosol can of Gasomatic

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## NEWS FROM ALL QUARTERS

### Underpass in Full Use

The second carriageway of the underpass at Hanger Lane on Western Avenue came into use last Friday.



### Adaption of Sheffield Depot

Tenter Street tram depot of Sheffield Transport Department, built in 1929, is to be used to house buses, and the building is to be refloored at a cost of £29,000. This will provide accommodation for 40 buses. Tenter Street is a two-level depot and already houses buses on its other floor.



### Channel Tunnel: Government Consideration

Conversations in this country on the Channel Tunnel were believed to be going "fairly well" and those in French Government circles "a little better than that," said Mr. L. F. A. d'Erlanger, chairman of the Channel Tunnel Company, at a meeting last week. He felt that some sense of urgency prevailed on both sides of the Channel.



### Better Facilities at London Market

New proposals for the improvement of traffic handling around Smithfield Market are before the City of London Common Council. They include a park for 50 vehicles at Folgate Street and widening of Brushfield Street. Twelve new warehouses and 14 stands are proposed, also a cafe for market users. To these ends the market would be extended southward towards Bishopsgate.



### Simplified Cheap Rail Fares

To reduce the variety of fare concessions offered, separate day, half-day and evening excursion tickets will disappear experimentally at the end of this month from the central part of the Southern Region. Instead there will only a "day ticket." It will be sold daily, except during the business travel period and on the busiest Saturdays. Day tickets will be issued for whole groups of neighbouring stations at the same fare, for example, Londoners visiting Brighton will be able to return from Lewes or Shoreham. Cheap day tickets will continue.



### English Electric Achievement

English Electric, which has received orders for nearly 450 main-line diesels covering all the five modernisation types of locomotive now going into service on British Railways, has reached the "century" with its 2,000-h.p. Type 4. The 100th to be completed, British Railways No. D.299, on October 21 left the Vulcan Foundry, Limited, Newton-le-Willows—one of the locomotive factories of the English Electric group—on its way to Doncaster for acceptance trials for the London Midland Region.



### No Wembley Specials

A shortage of train crews and other key staff in the London area has prohibited operation of the usual special service of trains between Marylebone and Wembley Stadium Station on October 26 and November 3 for international football matches. Under-staffing of signalboxes on the St. Pancras—Bedford line has reached the stage where the London Midland Region has been forced to cancel certain trains in order to maintain the reduced headway which the closure of certain signalboxes requires.



### Speed-Up in Mersey Tunnel

The Mersey Tunnel Joint Committee, subject to the approval of the Minister of Transport, is to revise the speed limits in the tunnel to improve its traffic capacity, now said to be stretched to the limit. The system of fixed slow and fast lanes will go, instead there will be a uniform maximum of 30 m.p.h. and minimum speeds of 10 m.p.h. on the inside and 21 m.p.h. on the outside lanes.



### Pontypool Ban on the Delivery Man

Objections against the Pontypool Urban Council proposed ban on loading and unloading of vehicles in the main street on Fridays and Saturday mornings, have been rejected. A public inquiry was held to hear the objections. A Ministry of Transport grant has been promised to widen the very narrow street by up to 15 ft. in places.



### Vehicle Taxation and Road Expenditure

Britain probably spends a smaller amount on road building and maintenance, expressed as a proportion of total vehicle taxation receipts, than any other country—15 per cent last year compared with 20 per cent by France, 38 per cent by Italy and 81 per cent by the U.S. Mr. C. T. Brunner, a director of Shell-Mex and B.P., Limited, said this in Toronto last week.



### Ruling on Headgear

Manchester Transport Committee on October 18 passed, with one dissentient, a resolution expressing support for the employment of men of any religious belief whatsoever as vehicle staff providing that they comply with the conditions of service. This means that Sikhs, of whom there are 600 in the city, will not be able to wear turbans when employed as drivers or conductors. Their leaders have been campaigning for this right for more than a year.



### Sheffield a Rail Freight Centre

Mr. E. R. Williams, British Railways district commercial officer in Sheffield, told a meeting of the British Institute of Management in Sheffield that a £10 million railway modernisation plan would make Sheffield the busiest freight centre of the North of England. The four goods depots at the Wicker, Bridgehouses, Queens Road and Wharf Street would close, and traffic would be concentrated on a 28-acre depot at Grimesthorpe. There would be a large marshalling yard between Treeton and West Tinsley.



### Park Lane Now One-Way

In order that work may start on the second stage of the Marble Arch—Park Lane—Hyde Park Corner improvement, a new system of traffic working was brought into operation on October 23. One-way traffic is in force north-south on Park Lane and south-north on the East Carriage Road. The new road beside Apsley House is now in service. Numerous London Transport bus and coach routes are affected by these first steps towards the new road layout. The second stage includes a temporary viaduct along the South Carriage Road to carry east-west traffic, a new link road to carry Knightsbridge traffic under the viaduct to the South Carriage Road and a start on the enlarged south-east sector of the Hyde Park Corner roundabout.



COMMERCIAL AVIATION

B.E.A. Fares Cut

B.O.A.C. APPRENTICES

As we recorded briefly last week, subject to final confirmation, single fares on British European Airways domestic tourist flights will be reduced by up to 50 per cent under a new fares system to be introduced next year. First-class fares between London and Scotland and Northern Ireland will be increased, however. From April 1, return fares will disappear from B.E.A. domestic timetables; only single fares will be quoted and return trips will be charged at twice the single fares. Except for first-class flights, this will mean reducing the price of one-way tickets to half the present return fares, including off-peak cheap excursion fares. About 150 single fares will be affected and the cuts will vary from 10 to 50 per cent. Return trips will cost no more than at present. This will result in 47 per cent reductions, for example, from £7 10s. to £4 single on certain flights between London and Belfast, Edinburgh and Glasgow and from £5 5s. to £2 15s. single between London and Manchester. The London-Birmingham single fare will be cut by half from £3 18s. to £1 19s. on all flights.

Except for certain journeys started in the Scottish highlands and islands, and from the Channel Islands, Isle of Man and Scilly Isles, the present type of excursion fare based on round trips with restricted validities will disappear. The new first-class fares will go up from £8 18s. to £9 single (giving an increase from £16 to £18 on return trips) between London and Glasgow, Edinburgh and Belfast. The increase is to go towards the cost of providing first-class amenities, including extra room, two-abreast seating, meals and drinks, a higher baggage allowance and full steward service.

New Triplex Aircraft-glass Division

Extensive alterations and additions to production plant, now almost completed, will provide what will be virtually a new aircraft-glass division for the Triplex Safety Glass Co., Limited, at its Kings Norton (Birmingham) factory. The alterations embrace a section devoted to production and development of Triplex gold-film heated glasses, for which production capacity has been doubled.

B.O.A.C. Transatlantic All-cargo Service

B.O.A.C. is to launch a new transatlantic all-cargo service during the last week in November using specially converted DC7C airliners. Two of the corporation's fleet of 10 DC7Cs are being converted into DC7F freighters at the Douglas plant in the U.S.A. The freighter version has a cargo capacity of some 5,000 cu. ft. and will carry a pay load of 32,000 lb. By the end of the year, B.O.A.C. plans to be operating two all-cargo services a week in each direction between London and New York.

Dublin—Belfast Air Link

Aer Lingus-Irish International Airlines will operate an experimental one-way service from Dublin to Belfast during the Christmas period. Four flights will be operated by Friendship aircraft on December 19, 21, 22 and 23, leaving Dublin at 11 a.m. and arriving at Belfast at 11.35 a.m. The aircraft will then continue to Glasgow and will return direct to Dublin. The single fare between Dublin and Belfast will be £2 10s. The company plans to operate regularly between the two cities next summer using Viscount aircraft, initially thrice weekly in both directions, timed to connect with the company's transatlantic flights from Dublin. Aer Lingus has secured I.A.T.A. approval for a 17-day excursion fare of £3 10s. for the Dublin—Belfast route. Normal return fare will be £4 10s. All fares are at present subject to Government approval.

B.O.A.C. Apprentice Scheme Starts

The first 17 boys to be accepted by British Overseas Airways Corporation as apprentices in the sales organisation arrived at the corporation's new sales training centre at Old Burlington Street, London, W.1, last week to begin a three-year course of study. They will be joined by a further 15 boys next March. Their apprenticeships are for a minimum of three years, or until the age of 21, depending upon age at entry. Main emphasis of their training will be upon B.O.A.C.'s worldwide passenger reservations organisation. The wider field of salesmanship will also be covered, including modern traffic handling procedures and some financial training; at the end of their apprenticeships, the trainees will begin work in the passenger reservations department. Further training courses are also available to help them in their subsequent careers.

Low Fares to Bermuda and Nassau

British Overseas Airways Corporation will introduce new low fares from London to Bermuda and Nassau on November 15. There will be a new 17-day excursion economy-class fare at an even lower price than the recently introduced skycoach fare. The new return fares London—Bermuda are £154 7s. economy class and £114 6s. 17-day excursion economy class, comparing with current economy-class return fare of £180 and the skycoach return fare of £130. The new fare between London and Nassau is £149 13s. return for the 17-day excursion economy class, which compares with the current skycoach fare of £162. The normal economy-class return fare London to Nassau remains unchanged at £189 15s. There will also be a reduction in special inclusive tour fares to Bermuda available through travel agents only. The new low fares also apply to the new co-ordinated Cunard Eagle services to Bermuda and Nassau.

Silver City Inland Terminal Plans

Applications for licences to operate a network of long-range vehicle ferry services between provincial cities in England and Scotland and the north coast of France has been lodged by Silver City Airways with the Air Transport Advisory Council. The applications, which cover a seven-year period from March 1 next, seek permission to operate up to six return vehicle ferry services each day from Blackpool, Liverpool, Manchester, Leeds, Newcastle, Edinburgh and Glasgow to Le Touquet, Calais and Cherbourg, and also from Newcastle to Amsterdam. Similar applications to operate passenger services over the same routes have already been made and the airline already holds a licence to operate a vehicle ferry from Birmingham to Le Touquet. The object is to avoid much of the driving on congested British roads, a plan said by Silver City to be preferred by many British motorists to the company's original plan to operate ferry services deep into France from the coast of Britain.

L.T.E. COMMERCIAL  
MANAGEMENT



L.M. Robbins

Mr. R. M. ROBBINS, B.A., F.S.S., M.Inst.T.

• • • • •

As already recorded in MODERN TRANSPORT, Mr. Richard Michael Robbins, who had, since 1950, been secretary of the London Transport Executive and also, since 1955, chief public relations officer, became, with effect from September 19, chief commercial and public relations officer of the executive. The appointment coincided with a reorganisation whereby, while continuing to be responsible for the public and press relations and publicity work of London Transport, Mr. Robbins assumed responsibility for the work of the closely-related commercial department. This latter function had been under the control of Mr. A. G. Evershed as commercial manager until his appointment last June as chief financial officer, while the secretaryship is now the responsibility of Mr. S. G. Jones. Educated at Westminster School, Christ Church College, Oxford, and the University of Vienna, Mr. Robbins, who is 45, joined the London Passenger Transport Board in 1939 and returned to it after war service in the Transportation Branch of the Royal Engineers, in which he attained the rank of major. Back with the L.P.T.B. he joined the public relations department and then, in 1947, he was appointed secretary to the chairman. Thereafter, as was indicated earlier, he became secretary to the London Transport Executive. He has just completed a three-year term as member of council of the Institute of Transport when, as a keen advocate of the value of objective historical research, he served most appropriately on the library and research committee. He has also been an eloquent supporter of the inclusion of transport history in the Institute's study requirements, and is a vice-chairman of the Metropolitan Section. He is joint editor of *The Journal of Transport History*.

SIGNAL ENGINEERS

Technical Visit

TO LONDON TRANSPORT

THE annual technical visit of the Institution of Railway Signal Engineers was held on October 15 when, through the courtesy of London Transport Executive, members visited signalling installations in the Earls Court area and at Parsons Green and Upminster. The party, numbering about 100, was led by Mr. W. Owen (president), supported by Mr. F. G. Hathaway (vice-president), Mr. D. G. Shipp (past president), Mr. H. V. Smith, hon. secretary, general purposes committee, and Mr. B. Reynolds, hon. treasurer for conventions and visits. The party was welcomed by a past-president, Mr. R. Dell, signal engineer, London Transport Executive.

The morning inspection included the new control room at Earls Court, opened on October 8, the control room at Cromwell Road, the interlocking machine rooms at South Kensington and Gloucester Road and the installation at Parsons Green, of which a description is being published in MODERN TRANSPORT. Under the new signalling arrangements, the signal box at Parsons Green has been closed and replaced by interlocking machines as is now usual on L.T.E. railways, but incorporating a siding allocation panel to provide for shunting trains which have to be stabled or put out in service. A paper entitled "Putney Line Programme Machines" by Mr. W. Woodhouse was read before the Institution on October 20.

Mr. W. Owen presided at luncheon at the London Transport Dining Club. In a short and witty speech he thanked Mr. Dell for the facilities. The party travelled to Upminster by special train from South Kensington. After the visit to the depot members were served with tea in two of the coaches on the special train, an unusual distinction on the Underground.

INTERNATIONAL ROAD  
TRANSPORT

Organisation and Activities of I.R.U.

SINCE it was set up in 1948, the International Road Transport Union (I.R.U.), under the terms of its constitution, has been dealing with national and international road transport in all its aspects. The Union is an international organisation, composed of the most representative national organisations of each member-country. The members of I.R.U. work in three sections:

Section I—PASSENGER TRANSPORT FOR HIRE OR REWARD  
President: Mr. H. Vis (Netherlands)  
14 member associations representing 13 countries.  
Section II—GOODS TRANSPORT FOR HIRE OR REWARD  
President: Mr. L. RAUCAMP (Germany)  
21 member associations representing 16 countries.  
Section III—TRANSPORT ON OWN ACCOUNT  
President: Dr. R. SCHÖBER (Germany)  
8 member associations representing 8 countries.  
There are in addition 20 associate members representing 11 countries.

Organisation

The business of I.R.U. is conducted by a council which acts as its general assembly; urgent business is dealt with by the presidential executive, consisting of the president of the Union (at present Mr. P. Schweizer, Switzerland) and the nine vice-presidents. A permanent secretariat-general (secretary-general is Mr. P. Groenendijk, Netherlands) with offices in Geneva, acts as its executive body.

The programme of I.R.U. is very far-reaching. It aims at studying and solving all questions raised by road transport, at securing uniform and simplified operational conditions for this form of transport and at co-ordinating and assisting efforts made in every country for its development. Among the most important problems being dealt with may be mentioned: co-ordination of transport; drafting of general agreement and set of rules for road transport; simplification of Customs and frontier formalities; transport of perishable foodstuffs; lowering of fiscal charges; and tariffs and cost of road transport.

International Co-operation

The I.R.U. is moreover encouraging the increase of output and improvement of the quality of the services offered by the profession in a particularly realistic way, by facilitating the establishment of international companies and commercial groupings. Thus, an international association for the transport of perishable foodstuffs has been constituted; this groups together the most representative operators of this special branch of activity from 13 countries.

As international economic co-operation develops, it is becoming necessary for I.R.U. to give more and more of its time to the work of international and supranational organisations; it has therefore taken part in numerous meetings organised by these organisations and has issued a great number of reports, notes and other documentary material for these bodies as well as for its own members. The task of the Union in these fields is very much facilitated by the fact that it has been granted consultative status by the United Nations and by the Council of Europe, which allows it to co-operate closely with the governments meeting in international sessions and it has been able to obtain important results through close collaboration with official circles. Examples which may be cited include:

the creation of new Customs documents (TIR carnets) to save time at frontiers;  
establishment of the international road transport contract; and  
opening of new international lines and acceptance of more liberal principles for motor coach services.

Contacts

While permanent contact is maintained with international governmental organisations such as the Transport and Communications Commission of New York, and the Economic Commission for Europe (ECE, Geneva), the European Conference of Transport Ministers (CEMT, Paris), the Organisation for Economic Co-operation and Development (OECD), the European Economic Community (ECE, Brussels), the Council of Europe and the European Coal and Steel Community (ECSC) close relationships are also maintained with non-governmental international associations such as the International Chamber of Commerce (ICCI), the World Tourist and Automobile Organisation (OTA), the International Road Federation (IRF), the International Union of Official Tourist Organisations (IUOTO), the International Federation of Travel Agents (FIAV), etc., so as to see in what way combined action can assist road transport.

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## THE PATTERN OF NAVIGATION

## A Series of Loops

By Wing-Commander E. W. ANDERSON, O.B.E., D.F.C., A.F.C.\*

EVEN a modern dictionary generally connects the word "navigation" only with ships. The Institute has always taken a much broader view and has accepted that navigation has to do with the land and with the sky as well as with the sea. Indeed, to modify a well-known definition, we can say that navigation is the business of conducting a craft that moves freely on its ways.

This definition is open to criticism. We accept that birds, bees and cross-channel swimmers may navigate and yet they are not exactly craft. However, the definition reminds us that the main interests of the Institute are in aircraft and sea-craft and, therefore, the word "craft" may be acceptable though it will need to be interpreted loosely. It may also be argued that the word "safety" ought to be included. Safety is perhaps not an essential ingredient though it is commonly a major requirement. An essential ingredient in navigation would seem to be the ability of the craft to manoeuvre. Indeed, were it not for its military associations, the definition might be compressed into six words "navigation is the conduct of manoeuvre."

## The Scope of Navigation

Movement is the essence of navigation. Conversely, while a craft is moving, it may be navigated. Navigation indeed covers all the phases of a journey including departure and arrival. The seaman speaks of navigating his ship in and out of port. The airmen accepts that navigation begins when his wheels start to roll on the runway and ends when they have stopped rolling on landing. Navigation is not confined to finding the way from one point to another. This is certainly the major problem when a new field is being opened up. However, the emphasis tends, with the passage of time, to shift from finding the way towards avoiding collision.

We can see this development going on around us. Space navigation is a new field and we have not yet learnt how to find the way. But on the sea and in the air, the problem of collision grows yearly more urgent. The Institute recognises this. As an example, this year the Gold Medal was awarded to Captain F. J. Wylie, R.N., very largely in recognition

\* Abstract of the presidential address to the Institute of Navigation on October 28.

of his great contribution to the major navigation problem of avoiding collision at sea.

The first stage of navigation will be the route, which has to do with static positions and distances. In order to traverse the route, the craft has to move with a certain velocity, generally defined in terms of course and speed. To achieve this velocity, the craft needs to be accelerated. Accelerations are usually applied along the length of the craft by motive power or across the craft by steering. We may refer to this third acceleration stage as handling. Thus the progress of the craft proceeds from the aim through the three stages of distance velocity and acceleration, or, to use navigation terms, through the route, course and speed and handling.

## Processes of Navigating

Having considered the three stages of navigating, let us now examine more closely the way in which the navigator does his job. At intervals, he finds his position by the use of a navigation aid, usually radio, radar, visual or astro. By this means he checks the progress of his craft against the route. If he discovers an error in his ways, he amends his route, alters his course and speed, and handles his craft accordingly. This new route is then checked by further navigation aids and rechecked as necessary.

The continual circulation of information and action, this process of hit and miss, is of course an example of a closed loop. However, closed loops are seldom simple systems. Generally we find a series of loops one within the other like the skins of an onion. This appears to be a feature of navigation. Within the outer positional loop, there is evidently an inner course and speed loop which we may call loosely the steering loop. In this loop, the course to be steered and the speed are regularly checked by a compass and by a ship's log, an air-speed meter or some other form of speedometer. Any correction necessary is fed back through the handling stages to amend the progress of the craft.

Within the inner steering loop there is evidently an innermost handling loop. High speed aircraft are provided with handling instruments and indeed this loop may be completely controlled by an autopilot. At sea, autopilots are coming into increasing use but, in narrow waters at the entry into ports, human judgment may be preferred until such time

as instruments have been developed on an economic basis which can detect the swinging of a ship as quickly as can the human pilot. Perhaps it is for this reason that although the captain of an aircraft with his complete instrumentation can accept directions from the ground, the captain of a ship prefers the pilot to come on board and watch all three stages of navigation, the route, course and speed, and handling.

We may now look a little more closely at the three loops of position, steering and handling, or distance, velocity and acceleration. Velocity is change of distance with time, and acceleration is change of velocity with time. This suggests that there is a further stage, change of acceleration with time. In theory, acceleration can change instantaneously and in practice a graph of change of acceleration would continually be jumping off the paper. But there is an even stronger reason for excluding this stage. There are navigation aids that measure distances and record positions. There are compasses that measure the course of the craft, and equipments that record its speed. There are devices that record accelerations according to the forces that result, but it is questionable whether any measure changes of acceleration directly.

Naturally, the distance graph appears as a slightly wavy line, the velocity graph as a kinked line and the acceleration graph as a mass of irregularities. The situation at +20 minutes is typical. The acceleration changes from braking to full speed ahead, a jump from one extreme to another. On the speed graph, this jump appears as a kink and on the distance graph only as a change of curvature. Thus large irregularities in acceleration accompany appreciable irregularities in velocity but result in only very small irregularities in distance.

## Irregularities Magnified

This raises special problems when we try to use a navigation aid, that measures our distance along the route, for steering or for handling. Any very small irregularity inevitable in our measurement of distance will be magnified into an appreciable irregularity in velocity and a large irregularity in acceleration. Thus position finding aids cannot generally provide accurate instantaneous measurement of speed and still less can they provide useful measurements of acceleration. Generalising, we can say that aids provided for outer loops are not generally suitable for inner loops.

On the other hand, aids that supply information for the inner loops may also supply information for outer loops. The irregularities will tend to be integrated out instead of being exaggerated. For instance, instruments that measure accelerations can provide indications of speed. A notable example is the airspeed indicator, essentially a handling instrument that checks the lift on the aircraft wings, which is operated by the acceleration of air particles rammed into the pilot tube by the forward speed of the aircraft. This instrument is used to measure speed through the air. In a similar fashion, aids that measure speed can be used to provide information regarding distance and this is exemplified by Doppler, which measures the speed of a craft compared to the speed of radio waves and, by integration, gives very accurate positional information. Inertial navigation systems go even further. They measure accelerations and provide information of speed as well as distance. To the navigator, however, the outstanding example of the tendency to work from the inner towards the outer loops is to be found in dead reckoning. This process enables the navigator to find future as well as present positions.

## Avoiding Collision

The three main loops and the dead reckoning loop have been connected particularly with the problem of finding the way. They apply probably to the problem of avoiding collision. However, when used in this way, the loops will probably be given somewhat different names. The outer positional loop could be known as the separation loop and depends on traffic regulation either in the form of ground control or general rules of the road such as "keep to starboard." It is interesting to notice that, at the recent meeting of the Institute at Southampton, considerable extensions to this principle of "one way streets" were suggested. The inner loop may be regarded as the collision avoidance loop, and depends on look-outs, either visual or radar. It involves only changes of course and speed though the resulting change in the progress of the craft may lead to reaction in the positional route loop. The innermost handling loop is perhaps seldom invoked though it presumably can arise. For example, at close quarters, a craft may have to turn towards another to avoid swinging its stern into danger.

The real point behind the idea of navigation as a series of loops is that this is likely to be the normal engineer's conception. The Institute is a meeting place for practising airmen and practical engineers and a pattern based on engineering principles may have some particular virtues. Nevertheless, the main reason for suggesting this approach to the navigation problem is far deeper. It is not generally appreciated how much the Institute can do in the development of ideas. During the last ten years, it has fostered what is really a remarkable change in navigational philosophy, the idea of probability. Today we have a language which enables the navigator to pass on his experiences. No longer is it a question of a position line being right or wrong, black or white. We have a language that can express the shade of grey. During the next ten years, it may well be the task of the Institute to foster the engineering ideas that seem to lie behind navigation; to help to introduce to the navigator the conception of servo systems and information theory. Human activities begin with an instinct, grow into an art and finally develop into a science. Navigation is following the same pattern and it may well be that the science of navigation will emerge as applied servo-mechanics.

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## MORE ABOUT THE PARIS SHOW

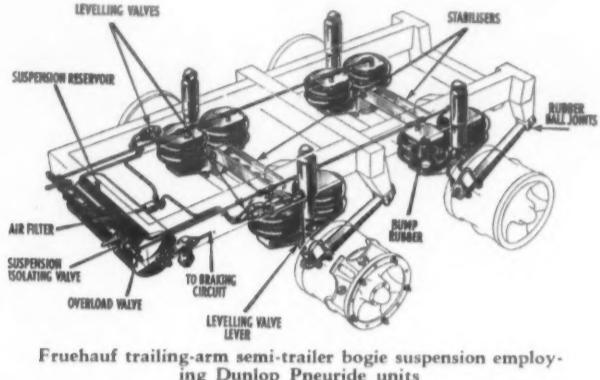
### Some Interesting Suspension Designs

#### SUCCESS OF BRITISH COMPONENTS

MUCH of the technical interest in the commercial vehicle section of the Paris Motor Show centred around a number of new and improved suspension systems for both powered vehicles and semi-trailers, all of which are aimed at improving wheel adhesion and load sharing during braking and reducing the racking that affects unladen vehicles, particularly those with high empty-laden ratios, fitted with conventional constant-rate steel springs. A solution to the prob-

horizontal plane so that the wheels and arms can be splayed outwards, when flaps and ramps are lowered on each side to provide drive-on drive-off access to the platform body, thus eliminating the need for removable wheels and jacks. The wheels are splayed outwards simply by reversing the trailer after pneumatic jacks on each side, powered by the trailer air reservoir, have exerted an outwards starting pressure on the trailing arms. Simplimatic trailers, which are built by Fruehauf under Nicolas licence, are offered for gross trailer weights up to 20 tons.

Fruehauf France also had prototype single-axle and bogie semi-trailer pneumatic suspensions on show, having failed to interest French operators in its rather expensive adjustable torsion-bar design of a year or two ago. The bogie version of the pneumatic system is illustrated. It is in fact the design already in production by the company's American parent modified to take Dunlop Pneuride components.



Fruehauf trailing-arm semi-trailer bogie suspension employing Dunlop Pneuride units

lem is perhaps more urgent for the Continentals than in Britain for several reasons; there is far wider use of big articulated vehicles (the worst case for unladen instability and rapid deterioration due to hard springs) in trunk haulage, speeds are generally higher and town streets and many trunk roads have poorer surfaces than is general at home.

Not that British manufacturers are uninterested with the problem, which has been sharpened for them by the higher commercial vehicle speeds permitted on the motorways and by the necessity to remain fully competitive in overseas markets. In

and a coach, by Bernard on both axles of a large box van and both axles of a 30-ton articulated tractor and by Baj et Fond on a single-axle semi-trailer. Pneumatic suspension systems were also shown by Unic on the driving axle of its new Saverne tractor and by Frejat and Cazenave on semi-trailers. The Baj et Fond design was notable for employing no dampers and the Cazenave for its use of the new Matériel Industriel internal-expanding friction dampers.

Savini introduced the steel-air Aerostable suspension system, already familiar on Renault Dauphine cars, for the rear axle of several of its commercial passenger vehicles at the show. Aerostable combines light semi-elliptic springs to cope with unladen weight and pneumatic units which stiffen up the suspension progressively with loading. Savini goods vehicles also were shown with composite rear springs comprised of semi-elliptics and Evidgom auxiliary rubber units.

The possible shape of things to come was indicated on the Messier stand, which carried drawings showing the suggested design of a complete oleopneumatic suspension system for heavy vehicles, but no practical outcome appears likely in the immediate future. On the other hand, Messier disc brakes, employing two discs and hydraulically operated calipers to each unit, have found production applications in Berliet heavy vehicles and a number of industrial equipments. A Berliet T25 23½-cu. yd. tipping vehicle fitted with the Messier units was the only disc-braked vehicle at the show.

#### Perkins Diesel Engines

Perkins diesel engines manufactured by the Perkins French associated company are enjoying a growing popularity in France and it is estimated that by the end of this year there will be a total of 100,000 in service. The company showed its new direct-injection 112 b.h.p. Six 354 unit at the exhibition in company with the well-established earlier engines and there were seven French manufacturers showing Perkins-engined vehicles, including Berliet, with a new P6-powered 4½-ton goods chassis. A P6 diesel also powered a Marmon-Herrington military desert personnel carrier and P4 engines powered Renault and Hotchkiss lorries. The successful 1.6-litre Four 99 was seen fitted to a Citroen 30-cwt. van and a similar unit provided independent power for Stone-Carrier refrigeration equipment in a Trailor semi-trailer.

Use of the later types of Perkins engines on the

#### Paillard Isobar rubber suspension for semi-trailers of up to 20 tons gross

fact, judged by the respective exhibits at Earls Court and Porte de Versailles this year, it appears that as far as production vehicles are concerned British manufacturers are well ahead of the French in the application of rubber and pneumatics to obtain improved riding characteristics in urban buses and bogie-borne goods vehicles and trailers, the types in which improvement was felt to be most urgently needed.

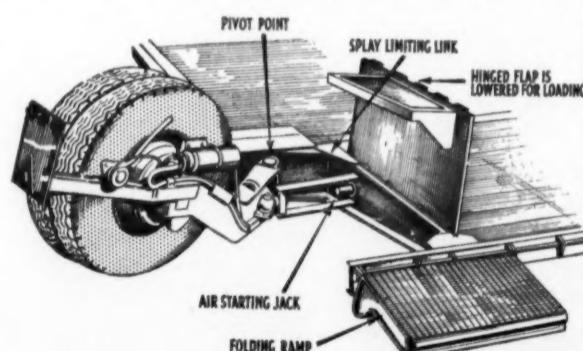
#### Many Experimental Designs

In common with designers in other countries, the French have been experimenting with various means of improving the ride of unladen semi-trailers, but the routines generally have been reluctant to bear the cost of a departure from conventional semi-elliptic springs in a balance-beam arrangement, even against the promise of a less-damaging ride for goods carried, lower tyre wear, improved braking and longer vehicle life. Consequently, at recent Paris shows there has been a scattering of experimental designs, few of which have progressed beyond the manufacturer appraisal stage. This year, however, although most of the exhibits in this category were prototypes, there was a new air of purposefulness about the designs and at least some of them seem likely to find production applications.

Among earlier unconventional designs that have had rather more success than others is the Coder Caouflex system using trailing arms and a series of solid rubber cones in a semi-trailer bogie suspension. The system has now been extended to single-axle trailers and has been developed into the Super-Caouflex, which incorporates an additional inflatable rubber unit to provide variable suspension characteristics.

Rubber compression-tension units also figured in a new Paillard bogie suspension which, as will be seen in the accompanying drawing, employs back-to-back oscillating arms on each side to give fully independent wheel suspension. An additional feature is that each fabricated suspension member embodies an oil reservoir for arm pivot and hub lubrication. This company has already had some success with its lightweight (up to about 1½ tons) trailing-arm-rubber independent trailer suspension—a field also covered by the Lemoine concern with a trailing-arm design employing Neidhart rubber units.

Neidhart rubber-in-torsion units were also employed in the independent trailing-arm suspension of a low-bed semi-trailer designed for simplified loading introduced by Fruehauf France. Named Simplimatic, the system employs trailing arms that are pivoted in a near-vertical as well as the hori-



Nicolas Simplimatic splay-wheel system employing Neidhart rubber suspension adopted by Fruehauf for low-bed semi-trailers

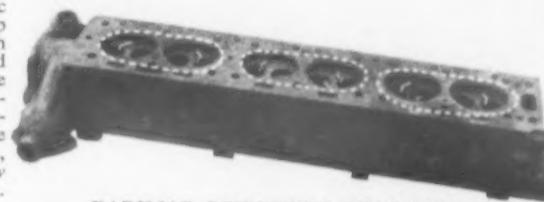
Continent has sharpened interest of diesel users there in the C.A.V. DPA fuel-injection pump—the only distributor-type pump yet to have achieved a marked commercial success. The earlier Précision Mécanique design of distributor pump now appears to have been dropped in favour of a new single-piston unit for up to six cylinders manufactured by the Parisian Sito concern under Bessière licence, for which Précision Mécanique has taken the distributorship.

Undeterred by this possible opposition, plans for the manufacture of the C.A.V. DPA unit in France have been vigorously pursued and production is expected to start in January. A new company named S.A. Roto Diesel, owned jointly by C.A.V., Limited, and the French electrical components company Duceiller (D.B.A.), has practically completed its new 650,000-sq. ft. factory at Blois, where DPA pumps will be produced for France and other Common Market countries. The French-made unit will follow the original C.A.V. design and some of the production machinery is being supplied from Britain. The new factory will eventually employ about 600 and an output of 6,000 DPA pumps a month by the end of 1961 is planned.

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## VEHICLE MOVEMENTS

### New Method of Control

ONE of the most promising solutions to the costly problem of controlling the movement of railway wagons and other vehicles was announced recently by Link Aviation of Binghamton, New York. Called the Tracer system, it is being distributed to railway and bus companies by the Western Railroad Supply Company of Chicago. It is a comparatively simple electronic system designed to provide continuous and up-to-date information on the identity and whereabouts of moving objects—such as freight wagons or transit vehicles. It consists of two basic components—a small response block, which is attached to the underside of each moving object to be identified, and a magnetic "interrogator" which is installed at strategic points along the routes.

#### Identification

As the moving object (such as a freight wagon) passes over the interrogator, the response block identifies itself through a unique electronic signal. This signal is picked up by the interrogator and transmitted to a central control facility. In the case of a railway this central facility might be a small signal box with simple read-out equipment for local control of wagons or a complete data processing centre for recording and controlling the movement of cars over an entire system. In the latter case, the identity and location information fed into the data processing equipment from the interrogator could be related to other information such as consignee, cargo, destination and route stored in a memory system.

The Tracer system is compatible with most existing data processing used in transport. The response blocks used with the Tracer system are compact (approximately 4 in. by 4 in. by 1 in.) lightweight, and relatively inexpensive. They will operate at speeds up to 100 m.p.h., and under virtually any temperature or weather condition, and require no wiring or external power source. As many as several million electronically unique response blocks can be manufactured.

The interrogators, which serve to actuate the response blocks, would be located at strategic points along the railway track. From each interrogator unit, a coil would extend to a point directly under the track. The electromagnetic coil would be close enough to the response blocks passing overhead to cause each in turn to transmit its identification signal. This signal would then be relayed to a control centre, using either radio, telephone wires or telemeter.

The actual cost of an entire Tracer installation would depend on the type and degree of identification required, the number of cars to be equipped and the number of interrogators to be employed. It is estimated that the response blocks will range in cost between \$10 and \$50 each, varying with the size of the identification numbers, while the interrogators will cost upwards of \$5,000 each.

#### Air and Bus Applications

Although developed principally for railway applications, Tracer has a number of other potential uses in a variety of fields. Control of aircraft on the ground at large terminals is one application for which Tracer is ideally suited. For both safety and efficiency, it is important that the control tower officials know the identification and location of each aircraft awaiting take-off. Tracer would provide this information automatically.

Perhaps one of the most immediate potential applications of Tracer is on city bus routes. Link is currently completing arrangements with a large U.S. transit company for the installation of Tracer on one of its main bus routes. This trial installation will be used to help the company monitor and control bus intervals along a route. Each bus will be equipped with a response block, while interrogators will be installed at strategic intersections along the route. Information provided by the interrogators to the central dispatcher's office will make it possible to control the flow of buses along the route and make better use of the time of inspectors.

### I.A.T.A. 1961-62 FARES

(Continued from page 5)  
offered between Bermuda and the United States and Canada. Rates for a wide range of specific commodity shipments between Canada and Europe will be reduced with effect from January 1 next. In addition, new developmental special commodity rates were agreed to encourage volume cargo between North American points and the Caribbean islands. Other western hemisphere cargo rates will remain largely unchanged.

#### Atlantic Fares

North Atlantic fares will remain virtually unaltered, but carriers on these routes will meet in the spring to assess the result of the new low 17-day excursion fares which took effect on October 1, and to consider further excursion and group travel schemes. Fares between the east coast of the United States and the Far East via the North Atlantic will be substantially reduced.

The mid-Atlantic, on which economy fares at 16 per cent reductions were introduced this month, there will be minor adjustments, but no significant changes. Special family fares will be introduced on the South Atlantic routes at substantial discounts off the round trip fares for each additional member of the family group. Cargo rates over the Atlantic routes will hold steady at present levels, pending the results of the January meeting.

The general fares levels on routes within Europe, Africa and the Middle East, between these areas and between Europe and the Far East and Australasia will remain unchanged after the substantial reductions effected over many of these routes earlier this year. However, the pattern of special creative and inclusive tour rates designed to promote greater off season tourist traffic will be further expanded and improved. Special holiday fares in Europe which had successful results this spring will be extended to the fall season. In addition, special fare reductions will be offered for parties travelling to the Middle East, including Israel, Jordan, Lebanon and the United Arab Republic, from Europe and the United Kingdom. There will also be special low excursion fares from Persian Gulf points to India and Pakistan and from Fiji to India. Cargo rates for these areas remain unchanged.

### ANNIVERSARY CELEBRATION

#### Nalder Bros. and Thompson, Limited

WITH the distinction of being founded in 1884 by Mr. F. H. Nalder, who was first chairman of the British Electrical and Allied Manufacturers' Association, Nalder Bros. and Thompson, Limited, of Dalston, London, was one of the pioneers among electrical measuring instrument firms; it was incorporated as a limited company in 1899 and this is celebrated every year by management and personnel in an annual gathering. The 61st anniversary was celebrated on October 15 by a dinner, dance and cabaret attended by nearly 300 employees and friends.

#### Presentation

Mr. A. G. O'Neill, the company's chairman, presided, supported by Mr. E. W. Semmens, managing director, Mr. D. W. Nalder, director and secretary, and Mr. A. R. Miller, director. During the evening a presentation was made to Mr. Semmens, managing director, to mark the completion of 50 years' service with the company, which he joined on October 7, 1910. Mr. O'Neill, who presented a radiogram on behalf of the directors, expressed appreciation of the work which Mr. Semmens had put in over the years. He said he was a leader who would carry on the tradition of the company equally as well as his predecessors. He might be justly proud of starting at the bottom and rising to be managing director. Mr. Semmens progressed from a test room engineer to become production manager and was elected to the board of directors in 1950. In 1957, when Mr. O'Neill, the chairman, retired from the managing directorship, Mr. Semmens succeeded him.

Mr. Semmens is chairman of the Instrument Section of B.E.A.M.A., and a member of the council of the Scientific Instrument Manufacturers Association of Great Britain. Mrs. E. O'Neill, wife of the chairman, presented an attractive brooch to Mrs. Semmens as a memento of the occasion.

### ALWEG SYSTEM

#### (Continued from page 3)

the line will lead alongside the Corso Polonia, passing the impressive building for the Southern Italy Development Fund. Near the Labour Palace, a building on a square base with each side 160 metres long, designed by Ing. Nervi, the Alweg line turns to the west and then changing into a reverse curve it passes the northern side of the Labour Palace. On this curve the line partly crosses an artificial lake and then reaches an Alweg station erected to the north of this exhibition building. This line will offer to the exhibition visitors the chance of being transported quickly from one end to the other of the relatively extended area and, additionally, by means of the elevated track, presents to the passengers the beautiful scenery of the mountains on the opposite side of the River Po.

#### Contractor

Italia 61 has commissioned the Italian firm of Giovannetti to carry out the construction of the Alweg line. Towards the middle of August this firm had already begun with the preparatory works for the manufacture of the prefabricated parts and for digging the foundations for pylons. Operation is due to start on May 1 next. This Alweg will comprise prestressed prefabricated hollow concrete beams each having a length of 20 metres. These beams are supported at their ends by slender concrete pylons. The line will be equipped, of course, with modern signalling apparatus.

An Alweg three-car unit will carry the passengers between the two stations in shuttle service. The maximum speed will be 50 m.p.h. notwithstanding the short distance of roundly 3,600 ft. On the customer's requirements the two end-cars of the Alweg three-car unit will be equipped with special front ends, designed by Ghia; later on, for the operation on the planned entire line of 11 km., these decorations will be exchanged for normal front-end layouts more suitable for urban transport. The well-known firm, Ghia of Turin, is also acting as a consultant for the styling and interior decoration of the train, which is being built in Germany by Linke-Hofmann-Busch.

### FORTHCOMING EVENTS

Until October 29.—International Motor Show, Earls Court, October 29.—R.T.L. R. B. Parr, "Tramcar Trucks," Exchange and Engineering Centre, Birmingham, 2.30 p.m.

Line of the L.B.S.C.R., "Railway Hotel, Brighton, 7 p.m.

October 30.—Inst.T. (Met.), W. G. Franklin, "The Operation of the Air Ferry," 80 Portland Place, W.1, 6 p.m.

November 1.—South Wales and Mon. R.D.L.D.S. (Cardiff), G. F. Fienies, "Future Place of Railways in British Transport," Angel Hotel, Cardiff, 6.30 p.m.

Inst. T. (Midland), J. W. Mitchell, "The Romance of the English Road," Engineering Centre, Stephenson Place, Birmingham, 6.30 p.m.

Inst. C.E. Presidential address by Sir Herbert Manzoni, Great George Street, S.W.1, 5.30 p.m.

Inst. T. (Gloucester and Cheltenham), E. V. Baker, "The Shipping Industry," Royal Hotel, Gloucester, 7 p.m.

Inst. T. Anniversary luncheon, Connaught Rooms, Great Queen Street, W.C.2, 12.15 for 1 p.m.

I.R.T.E. (Eastern), T. G. Charlesworth, "Recent Developments in Fuel Injection Pump Design," Golden Lion Hotel, Ipswich, 7.30 p.m.

November 1.—Inst. T. (Humbershire), Annual dinner and visit of hon. librarian, Guildhall, Kingston upon Hull, 7 p.m. for 7.15 p.m.

E.R.S. G. T. Moody, "Electrification Embraces London, 1890-1923," 153 Drummond Street, N.W.1, 7.15 p.m.

Inst. P. J. Tubman and J. F. Manger, "Applied Petroleum Research on a Vehicle Dynamometer," 61 New Cavendish Street, W.1, 5.30 p.m.

Inst. T. (Southern), Major-General G. N. Russell, "Transport Tomorrow," Harbour Board Offices, Southampton, 5.45 p.m.

N.E.C.I.E.C. (Student), Chairman's address by P. T. Heywood, "Sound at Sea," Bolster Hall, Newcastle upon Tyne, 7 p.m.

P.R.D.G. P. R. Dashwood, "Property and the B.T.C." Technical College, Peterborough, 6.45 p.m.

I.R.T.E. (East Midlands), G. Langford Allen, "The Use of Plastic in Road Transport," Mechanics' Institute, Nottingham, 7.30 p.m.

I.R.T.E. (Western), A. Enticknap, "The Future of Road Transport," Royal Hotel, Bristol, 7 p.m.

November 3.—Inst. C.E., I.Mech.E., I.E.E. Joint Meeting, W. Abbott, "The Training of Overseas Graduate Engineers," I.E.E. Savoy Place, W.C.2, 5.30 p.m.

Inst. T. (Merseyside and N.W.), Debate: "That Freight Mechanisation is not being Developed as it should be," Chamber of Commerce, Liverpool, 6.30 p.m.

I.R.T.E. (South Western), A. Enticknap, "The Future of Road Transport," Exeter City Fire Brigade, Exeter, 7.30 p.m.

November 4.—Inst. T. (Western), F. Meacock, "The Operation of an Irish Sea Service," Docks Office, Bristol, 1.15 p.m.

Rly.C. Dr. P. Ransome-Wallis, "Some Interesting Continental Locomotives," Royal Scottish Corporation, Fetter Lane, E.C.4, 7 p.m.

The Series II Land-Rover is the subject of the latest addition to the Castrol range of lubrication charts. Copies are obtainable free on request to Castrol Chart Library, Castrol House, Marylebone Road, London, N.W.1.



### W. S. Yeates Ltd., use 'Perspex' in their luxury coaches



This is a Bedford 41 seater Europa coach built by W. S. Yeates Limited, in which the two 'Weather-shield' roof ventilators, one fixed roof panel, the roof quarter light windows, the two front canopy windows and the opening window in the rear dome are made from blue tinted 'Perspex' acrylic sheet.

'Perspex' is used because it is robust, long-lasting, light in weight, and easy to maintain. It stands up well to all kinds of weather without losing its attractiveness and is unaffected by the corrosive atmospheres of industrial and marine areas. 'Perspex' is made in a wide range of colours.

In the Europa 'Vynide' p.v.c. Leathercloth is used for the interior trim on pillars between windows. 'Vynide' is made by I.C.I. (Hyde) Ltd. from p.v.c. made by I.C.I. Plastics Division.

### PERSPEX

is the registered trade mark for the acrylic sheet manufactured by I.C.I.

IMPERIAL CHEMICAL INDUSTRIES LIMITED · LONDON · S.W.1.



## DISTRICT LINE SIGNALLING

### Programme Machines at Parsons Green and Earls Court (Cont.)\*

WHEN programme machine No. 4 refers to siding allocation panel, offering a train number, this number is offered to each group of siding switches in turn by the scanning chain of relays. The next switch to be used in each siding group is switched in by a stepping circuit which disconnects the switches in turn as they are used. Lamps associated with the switches are illuminated to show those switches representing movements which have still to be used during the day. When the scanning chain reaches the special group of switches allocated to additional shunt movements, the scan pauses and a second chain of scanning relays is set in motion which offers the train number to each switch in turn in this group. In setting the panel for the individual sidings, the appropriate train movements must be set in chronological order, but in the additional shunt movement group it is not necessary, and by setting a siding number and a train number, the scanning circuit will find the train number and the route to the siding will be registered for the setting up of the signalling movement.

In arranging the circuits of the switches on the siding allocation panel, 784 diodes have been introduced, resulting in a simplification of the wiring. The whole of the circuits of this panel by this means are condensed to eight wires representing the train number, 10 wires representing siding routes, 10 wires for selection of additional shunt movements and 26 control wires.

#### Pattern of Movements

The weekday pattern of movements remains from day to day as set by the yardmaster at the beginning of the week, except where modifications have had to be made to meet special circumstances. The panel must be re-set for Saturday and Sunday movements. The general rule in setting the panel is that, for service trains, the number is set for the siding from which the train starts on entering service or to which it must go when coming out of service. For shunting movements, the number is set for the siding to which the train is to move.

Each siding outlet signal at Parsons Green has an associated plunger which is operated by the driver or shunter who is to take charge of the train to be moved. This action not only indicates that the train is ready to proceed but also gives the necessary information as to the siding from which a shunting movement is to start—the siding at which it is to end is indicated by the panel setting.

#### Putney Bridge

There are two platforms at Putney Bridge. That for eastbound trains is served only by the through eastbound road but the westbound platform is an island platform served by the through westbound road and by a bay road which lies between the eastbound and westbound tracks. Facing points lead from the westbound track to the bay platform, and facing points from the bay road make a trailing connection with the eastbound track. There is a trailing crossover, between the east and westbound tracks at the west end of the station, which is not controlled by programme machine, but only by push-buttons in the supervision room at Earls Court. There are three sequence machines at Putney Bridge; the first (S1) is concerned only with eastbound trains from Wimbledon, which it offers to machine S2. This second machine deals with all eastbound trains and the converging junction between the eastbound and bay roads. Machine S3 controls the westbound facing junction between the through road and the bay and routes trains to the Wimbledon (through) platform or the bay platform as required.

There is one time machine, which regulates machines S2 and S3. Except that the machines incorporate the decimal-binary numbering features described in relation to the Parsons Green machines, the Putney Bridge installation is of the same pattern as those on the Northern and Metropolitan Lines. At Putney Bridge, the train description transmissions for eastbound trains must be originated as there is no manned signal cabin on the London Transport system beyond this point, and the transmission of these descriptions is arranged to be carried out direct from the programme rolls of machines Nos. S1 and S2.

#### Supervision Room

The automatic operation of the signalling at Parsons Green and Putney Bridge is supervised from a temporary control room at Earls Court. A permanent control room will be provided later. The room contains an illuminated diagram showing the signalling in the Putney Bridge and Parsons Green areas; a set of push-buttons for the manual control of the routes concerned, if circumstances require it; and switches for switching various programme machine conditions in or out. The push buttons are fitted into a panel below the illuminated diagram. Beneath this main panel are six smaller panels associated with the four sequence machines at Parsons Green and machines S2 and S3 at Putney Bridge. Each of these six panels has a three-position switch for selecting normal programme machine working; "first-come, first-served" working; or push-button

working. There are also controls for selecting out-of-turn working, acknowledging a warning that the programme-roll description of a train and train-describer description are at variance, and three rotary switches for selecting the number of a train to be cancelled, with a push which must be operated to indicate the cancelling of this train on the programme machine.

By the use of appropriate switches in the supervision room at Earls Court, the following conditions can be set up at Parsons Green or Putney Bridge:

- (1) Normal programme machine working: everything will then run automatically in accordance with the working timetable.
- (2) Should the train working on a section of line associated with a particular programme machine depart from the timetable, the equipment can be switched into train-describer and "first come, first served" working: the signalling will continue to work automatically, but trains will be signalled individually according to their destination (in the case of a facing junction) or their time of arrival (in the case of a converging junction).
- (3) If it is necessary to deal with train movements not shown in the timetable, automatic working can be suspended for each programme machine individually and the routes concerned can be operated manually from push-buttons in the supervision room.

#### Checking Train Describers

The circuits controlling the programme machines are arranged to check the train describer for each train. Should the train description not be the same as that provided in the programme machine roll, a warning will be sounded, and the supervisor, by using a special key, can cause the equipment to work to the programme machine and ignore the train describer or work to the train describer and ignore the programme machine. The equipment will also sound a warning at Earls Court should the train service fall more than two minutes behind the scheduled time. The supervisor also has controls which enable a programme machine to be held in step while an extra train, not shown in the timetable, is run.

The programme machines can automatically take account of late running of trains and, if it exceeds a predetermined amount, can dispatch a train out of turn. A switch at Earls Court enables the degree of lateness to which the programme machine will respond (1, 2 or 4 minutes) to be selected.

#### Cancelling Trains

When a train is to be cancelled, the train number is set up by a group of switches at Earls Court, a separate group of switches being provided for each programme machine. When the number set up on the cancelling device coincides with that reached by the appropriate machine, the machine is stepped without a route being set up. The cancelling circuit is simpler than that used for the Northern Line installations, and it also allows the number of the cancelled train to be set up at any time before the train would normally have been dealt with by the programme machines.

The Putney Line programme machine installation was designed and installed by Mr. R. Dell, O.B.E., M.I.E.E., M.I.Mech.E., M.I.R.S.E., signal engineer, and his staff to the requirements of Mr. C. E. Dunton, M.A., M.I.C.E., chief civil engineer, London Transport.

## L.T.E. CENTRAL BUSES

### Divisions Reorganised

AS from Monday, October 31, the Central Road Services operating organisation of London Transport is to be modified to bring it more closely into line with current conditions. The present four divisions will be reduced to three, to be designated West, East, and South, under the control of Mr. J. B. Burnell, C.B.E., J.P., M.Inst.T., operating manager (Central Road Services). The divisional superintendents will be as follows:

West Division (office at Dollis Hill, Cricklewood): Mr. A. E. Flack, at present divisional superintendent, North West Division;

East Division (office at Manor House): Mr. M. J. McCoy, A.M.Inst.T., at present divisional superintendent, North East Division;

South Division (office at Warner Road, Camberwell): Mr. J. Lloyd, B.Sc., F.I.A., F.S.S., at present divisional superintendent, South West Division.

This reorganisation takes account of the retirement at the end of this month of Mr. J. R. Garwood, M.B.E., M.S.M., M.Inst.T., at present divisional superintendent, Central Road Services, South East Division. In broad terms, the South division lies south of the Thames, the East division covers the north side of the Thames east of a line running northwards from Aldwych through Potters Bar, and the West division lies west of that line on the north side of the river except for a small section south of the Thames at the extreme southwest of the division. There will be seven districts within each division. A similar regrouping of Central Area engineering divisions was carried out last January. Mr. G. P. Stuart Clark, M.Inst.T., indoor superintendent, Central Road Services, is also retiring.

\* First portion appeared October 22.

### B.T.C TRAFFIC RECEIPTS: PERIOD NO. 10—1960

PASSENGERS	Four weeks to			Aggregate for 40 weeks to		
	Oct. 9 1960	Oct. 4 1959	+ or —	Oct. 9 1960	Oct. 4 1959	+ or —
	(£ thousands)	(£ thousands)		(£ thousands)	(£ thousands)	
British Railways .....	11,468	10,787	+	681	119,297	110,856
London Transport .....	4,470	4,438	+	32	43,671	42,051
Road passenger services .....	2,058	1,813	+	245	19,879	18,081
Provincial and Scottish Buses .....	4,938	5,003	—	65	48,446	47,853
Ships .....	593	742	—	149	6,528	6,700
Total Passengers	23,527	22,783	+	744	237,761	225,541
						+
						12,220
FREIGHT, PARCELS AND MAILS						
British Railways	8,274	8,119	+	155	77,619	75,293
*Merchandise and livestock	3,839	3,531	+	308	37,284	33,143
*Minerals	9,050	8,017	+	1,033	81,484	82,743
*Coal and coke	4,509	4,354	+	155	42,775	41,143
*Parcels, etc., by coaching train						
Others	25,672	24,021	+	1,651	239,162	232,322
	4,755	4,561	+	194	44,052	42,133
Total Freight, Parcels and Mails	30,427	28,582	+	1,845	283,214	274,455
Aggregate	53,954	51,365	+	2,589	520,975	499,996
						+
						20,979

\*Includes receipts from collection and delivery, etc., and from railway freight traffic within Commission-owned dock areas.

Comparisons are affected by changes in rates and charges which have been made from time to time.

## Speed and Safety in Modern Railway Operation



The new Diesel Electric Pullman Trains built by Metropolitan-Cammell Carriage and Wagon Co. Ltd., for the Pullman Car Co. Ltd., are fitted with the Westinghouse two-stage electro-pneumatic high speed brake, which automatically provides increased braking pressures at high speeds.

The Signalling at the London Midland main line terminal station at St. Pancras, is a Westinghouse O.C.S. installation, controlling 205 routes, with electro-pneumatic operation of the 61 pairs of points.



St. Pancras

## WESTINGHOUSE BRAKES AND SIGNALS

are playing an important part in the British Railways modernisation plan.

Westinghouse Brake and Signal Co. Ltd., 82 York Way, London, N.1  
Saxby & Farmer (India) Private Ltd., Calcutta  
McKenzie & Holland (Australia) Pty. Ltd., Melbourne  
Westinghouse Brake & Signal Co. S.A. (Pty.), Ltd., Johannesburg  
Agents:—Bellamy & Lambie, Johannesburg

## CLASSIFIED ADVERTISEMENTS

CLASSIFIED ADVERTISEMENTS should be addressed to THE MANAGER, Classified Advertisements, MODERN TRANSPORT, Russell Court, 3-16 Woburn Place, London, W.C.1.

### FOREIGN EMPLOYMENT

#### ROADMASTER

ENGINEERING graduate preferred; minimum of two years' engine room training essential. Require two years' varied railroad engineering service, or five years in direct charge of track crews. Will supervise 135 men maintaining 45-mile railroad, assign work, order materials, be responsible for safety, make regular detailed inspections of roadbed and all track on main line, sidings and yards, bridges, tunnels, etc. Will make engineering calculations relating to maintenance and use of structure and equipment. Must speak Spanish. Married or single candidates acceptable.

Excellent opportunity large copper company, Chile, South America. Two-year contract with transportation both ways for you and family. Base salary \$525.00 to \$650.00 per month depending upon age and experience of applicant. Box No. 3846, MODERN TRANSPORT, 3-16 Woburn Place, W.C.1.

#### SITUATIONS VACANT

#### LANCASHIRE UNITED TRANSPORT, LIMITED

#### WORKS SUPERINTENDENT

THE position of Works Superintendent will become vacant in the near future.

The Workshops are modern and provide all facilities for the complete chassis and body overhaul of motor buses.

Applicants should be well versed in Workshop practice and preferably have Public Service Vehicle experience.

Pension scheme.

Applications will be treated in strict confidence and should be made giving full particulars to:

The General Manager,

Lancashire United Transport, Limited,

ATHERTON, Lancs.

Closing date—November 26, 1960.

DRAUGHTSMAN REQUIRED for work in connection with Public Passenger Transport Vehicles—Body Design. National Certificate Standard and completed National Service Training. Canteen facilities: Free travel to and from duty on company's vehicles and other travel concessions. Apply in writing giving particulars of age: Salary required: Experience, etc., to Staff Department, Birmingham and Midland Motor Omnibus Co., Limited, 871 Bearwood Road, Smethwick 41, Staffs.

FREIGHT ACCOUNT AND COSTINGS CLERK (male age 22-35 approx.) required at Head Office of progressive West End Company; some previous experience of rail, road and sea transport accounting desirable. Five-day week. Pension scheme. Staff restaurant. Write giving details of age, experience and present salary to Personnel Manager, Crosse and Blackwell, Limited, 20 Soho Square, London, W.1.

#### BUSINESS FOR SALE

GARAGE, S.E. LONDON. Petrol 250,000 g.p.a. Workshops, parking area, 234,000 leashed. Apply R. J. Lang, Limited, 8 Thomas Street, Woolwich, S.E.18. WOO 6787/8/9.

## PICKFORDS HEAVY HAULAGE SERVICE

Abnormal Loads • Lifting

MOBILE CRANES FOR HIRE • Branches in all large towns

## OFFICIAL NOTICES

## CITY OF SHEFFIELD

APPOINTMENT OF GENERAL MANAGER  
OF THE TRANSPORT UNDERTAKING

APPLICATIONS are invited from suitably qualified and experienced persons for the whole-time appointment of General Manager of the Sheffield Transport Undertaking at a commencing salary within the scale of £3,600 per annum, rising by annual increments of £150 to a maximum of £4,050 per annum. An engineering qualification will be an advantage.

The appointment will be subject to a medical examination, superannuation, three months' notice on either side, and the Conditions of Service contained in the Memorandum of Recommendations of the Joint Negotiating Committee for Chief Officers of Local Authorities, as adopted and applied by the City Council to their Chief Officers.

Applications, which will be treated in confidence, must be made on the official form obtainable from me upon request and must reach me on or before Monday, November 21, 1960.

Canvassing, whether direct or indirect, is prohibited and will be a disqualification.

JOHN HEYS,  
Town Clerk.

Town Hall,  
Sheffield.

THE NORTHERN GENERAL TRANSPCRT  
CO., LIMITED

## VACANCY FOR TRAFFIC MANAGER

THE Northern General Transport Company is inviting applications for the position of Traffic Manager, which will shortly become vacant.

The Company (whose headquarters are at Queen Street, Gateshead, Co. Durham) with its subsidiaries, operates some 935 buses and coaches on stage carriage and express services, excursions and private hire, also extended tours in the United Kingdom and on the Continent.

The salary will be commensurate with the responsibilities of the position and have regard to the qualifications and experience of the successful applicant.

Applications, which will be treated in strict confidence, should be addressed to the General Manager of the Company to reach him not later than November 7, giving full details of qualifications and experience, with a front cover sheet showing:

1. Name and address.
2. Age.
3. Whether single or married and, in the latter case, the number and ages of any children.
4. Education.
5. Concise summary of previous appointments arranged chronologically.
6. Present salary.

THE CITY OF OXFORD  
MOTOR SERVICES, LIMITED

## VACANCY FOR SECRETARY/ACCOUNTANT

THE City of Oxford Motor Services, Limited, operating a fleet of some 235 public service vehicles, invites applications for the position of Secretary/Accountant, which will become vacant early in 1961.

Applicants should be between the ages of 30 and 45, possess a recognised accountancy qualification, and must have a sound practical knowledge of company taxation. Previous experience in the passenger road transport industry, although not essential, would be an advantage. The starting salary will depend on qualifications and experience of the successful applicant. There is a contributory pension scheme, and a house will be available (if required) on a rental basis.

Applications, stating age, education and family status, together with particulars of existing and previous employments and present salary, should be sent under "Private" cover to the General Manager of the Company at Cowley Road, Oxford, by November 9, 1960.

## IMPORTANT CONTRACTS

## Ticket Conveyor at L.A.P.

A TICKET and document conveyor has been installed for British European Airways in the domestic flights department of London Airport Central to help speed the documentation of passengers. Designed and manufactured by John Thompson Conveyor Company, Wolverhampton, it comprises eight bays, the discharge end feeding documents to the flight control desk. Tickets can be posted at any one of eight posting slots, one to each bay. Although the conveyor at London Airport is designed to deal with tickets up to 6 in. deep, the design could readily be adapted for using larger sheets, or could be used for handling work cards, records and numerous types of document and correspondence which pass between departments in offices and factories. Many variations can be made, including reversing mechanisms, speed variation, directional changes and inclines, counters, additional discharge points and stops for holding tickets for individual attention.

## S. and D. Collectors For Newcastle

Newcastle upon Tyne City Council is to purchase four 25 cu. yd. refuse collecting vehicles from Shelvoke and Drewry, Limited.

## Salford Re-equipment

Salford City Transport is soon to buy 40 new double-deck buses and 10 single-deckers as replacements. The undertaking expects to pay about £240,000 spread over an extended delivery period.

## Guy C.V. Show Orders

During the Commercial Motor Show orders to a total value of £375,000 were placed with Guy Motors, Limited. The two largest orders booked were from T.G.B. Motors, Limited, Clitheroe, and Richardson and Son, Limited, Oldbury, for 70 and 40 vehicles respectively; the bulk of the orders were for goods vehicles.

## Recent Albion Orders

New orders placed with Albion Motors, Limited, include one from Sri Jaya Transport Company, Kuala Lumpur, for four Victor bus chassis, one from S. Robson Border Transport, Carlisle, for nine Reiver lorry chassis and one from Ushers Brewery (Watney-Mann Group) for six Chieftain lorry chassis.

## Vulcan Finish At The Show

No fewer than 37 of the vehicles exhibited at the recent Commercial Motor Show had a Vulcan finish in material from the industrial division of Blundell, Spence and Co., Limited. About half of the total were finished in One Coat Glossex and others in Vulflor Self Gloss and Coach Glossex. There were also two examples of Glossex superfine varnish and one of Nitraluse.

## Floating Grain Elevator for Hull

British Transport Docks has ordered a new floating grain elevator, capable of handling 300 tons of grain an hour, for King George Dock, Hull. It will be similar to two floating elevators already in use at the dock. The elevator is being provided under the £41 million development scheme now under way at King George Dock; it will be supplied by Simon Handling Engineers, Limited.

## Leylands for Cement Company

Ribblesdale Cement, Limited, has placed contracts with Leyland Motors, Limited, for 22 Super Comet tippers, powered by the new Power-Plus 400S diesel engine, three Hippo tippers, a Hippo lorry chassis, a Comet-Scammell tractor, and a Comet lorry chassis. Eight of the 14-ton Super Comets will be fitted with Autolifts tipping gear, Wellworthy blowers and pressurised tanks, four having Bonallack Pneumajector tanks of 296 cu. ft. capacity and four having 286 cu. ft. Interconsult tanks.

## London Midland Region Contracts

Recent contracts placed by the London Midland Region of British Railways include:

T. A. Ellis and Co., Limited, Nuneaton, for raising of platforms and ramps at Sawley Junction Station.

Coffin and Co., Limited, London, W.C.2, for reconstruction of superstructure in steel and prestressed concrete of bridge on the Euston-Rugby line.

Wellerman Bros., Limited, Sheffield, for Aerocem pressure pointing and grouting at Corby Tunnel.

J. G. Parker, Limited, Derby, for construction of engine balancing tables building at Derby locomotive works.

Edward Wood and Sons, Limited, Derby, for road motor repair shed and petrol installation at new freight terminal, Stoke-on-Trent.

## Second Heenan Test Plant At Swindon

The Western Region of British Railways has placed an order with Heenan and Froude, Limited, for a railcar engine test plant, to be installed at Swindon. The plant will include two dynamometers, each capable of absorbing and measuring up to 650 b.h.p. at speeds up to 3,500 r.p.m., with a universal engine mounting stand, cardan shaft, control desk, water cooling and exhaust systems and engine starting and running-in gear with a 40-b.h.p. motor. Earlier this year Heenan and Froude won a contract for plant for testing the engines and transmissions of Warship class diesel-hydraulic locomotives to be built at Swindon.

## A.E.C. Engine Orders

Recent bulk orders received by A.E.C., Limited, for automotive diesel engines include one from Vanajan Autotehus Oy, Helsinki, for a further 250 AH470 engines and one from Canadian Car Company, Montreal, which supplies some 60 per cent of the Canadian bus market, for a further 106 AV690 engines. New vehicle business booked by A.E.C. includes a repeat order from Durban Corporation Transport for 24 Regal IV single-deck chassis, a contract for 11 Mammoth Major eight-wheelers for coal haulage placed by R.E.G. Transport, Lichfield, which firm has also ordered six Marshal six-wheelers, and an order for three Marshals with 18-cu. yd. tipping bodies by Henry Joyner, Limited.

## Road Contract for Tarmac

Tarmac Civil Engineering, Limited, has been awarded a £115,000 contract for work involving diverting the Worcester-Wolverhampton-Staford trunk road (A449) from the village of Battlefield in Sta. -hire. At present the section of the road through the village is narrow and curved and has a steep gradient. The new road will be on the east side of Battlefield and have dual 24-ft. carriageways separated by a central reservation. Starting from a roundabout to be constructed at the junction between A449 and the Gospel End (A463), the dual carriageways will extend to just over half a mile to the south. Staffordshire County Council, acting as agent authority for the Ministry of Transport, prepared the scheme, which is due for completion in 12 months.

## SHIPPING and SHIPBUILDING

## Ferry to Finland

TRANSPORT between Finland and Sweden and between Finland and Western Europe will be improved considerably early next year when a Finnish shipping company opens a vehicle ferry between Turku, on the south-west tip of Finland, and Sweden. The overland route from Turku via Rovaniemi (in Lapland) to Stockholm is 1,220 miles. The ferry route from Turku to Sweden is only 198 miles.

## Middlesbrough Acquisition

AGREEMENT has been reached in principle for the Tyne-Tees Steam Shipping Co., Limited, to acquire T. Roddam Dent and Son, Limited, the Middlesbrough wharfinger. Tyne-Tees Shipping is a Coast Lines company.

## Work Starts at Cork Yard

LAVING the keel of the first vessel for construction in the Verolme Cork Dockyard took place on October 15. This was referred to at the latest meeting of Cork Harbour Commissioners, as was the ordering of two new tenders for servicing Atlantic liners. Future work will include the improvement and deepening of the river channel and renewal of part of the dredging plant. The financial position of the port is good, it was stated.

## Luckenbach Looks Forward

PLANS to convert the American Luckenbach Steamship Company into a modern container ship line were announced by Mr. Edgar F. Luckenbach, Jr., a grandson of the founder of the firm, who has just been elected chairman. He said that details for financing and implementing the change-over to a container ship service between New York and the U.S. Pacific coast would be worked out shortly. The Luckenbach Line at present has 16 vessels.

## Commercial Use of Sheerness

SOME relaxation of the Government attitude that Sheerness Harbour should not be developed as a commercial port is indicated by permission being given for the import of bricks. The Treasury says that the question of other imports or exports is being reconsidered. Sheerness Naval Harbour basin was used by a commercial vessel, the *Audacia*, carrying 440 tons of general cargo and 50 standards of timber from Gothenburg, Sweden. During the same week, the *Hironides* arrived at Sheerness with 300 tons of general cargo from the Continent. The harbour is capable of dealing with vessels on a 24-hour turnaround.

## Traders and London Dock Strikes

London Chamber of Commerce has written to the Prime Minister about the anxiety caused by the labour situation in the London docks. Heavy losses from the hold-up of goods urgently needed, the cancellation of contracts, demurrage charges, diversion of trade and undermining of confidence, it is stated, have been suffered at frequent intervals by users of the port. Practically all stoppages, moreover, have been unofficial, often directly contrary to the instructions of the unions concerned and unconnected with wages. On many occasions the users of the port have drawn attention to the grave inequity of their treatment and to the damage done by unofficial stoppages to the nation's economy. The effect on overseas customers of successive interruptions to the flow of goods through the port is cumulative. The tale of cancelled orders and diversion of business mounts daily. In these circumstances the new export drive "which you yourself inaugurated" appears a mockery to exporters who are struggling against odds to maintain even their existing volume of sales. It is appreciated that there is no easy solution to the problem, which is basically a question of union discipline, but the Chamber contends that the stage has been reached where it can no longer be ignored, and that it must now be the responsibility of the Government. "We therefore appeal to you to give urgent consideration to this serious menace to the future of our overseas trade," it says.

## Better Year for Clyde Trust

REVENUE of the Clyde Navigation Trust during the 1959-60 financial year reached a new record level of £2,999,810, an increase on last year of £274,949 and just over £100,000 higher than the previous best in 1957-58. This was stated at the October meeting of the Trust. Expenditure charged to revenue—£2,848,668—was £122,354 more than last year, but then £50,000 was brought in from the reserve for extraordinary repairs and renewals, so that the comparable increase in expenditure was £72,354. There was a surplus of £151,142 and £115,060 was carried to the sinking fund in terms of statute; £30,000 to provision for extraordinary repairs and renewals, and the balance of £6,082 to the credit of revenue reserve. Shipping entering and leaving port rose during the year by 655,773 tons to 15,810,847 tons, an advance of 3 per cent over 1959 and the first increase since 1946. Goods imported and exported were up by 345,613 tons to 6,727,151 tons, an increase of 8.7 per cent over 1959. Imports of iron ore, 432,000 tons up at 1,587,000 tons, showed the largest increase. At the new granary at Meadowside, which came into operation in May, 1960, grain discharged, at 355,000 tons, represented an increase of 18,000 tons. The Trust has approved a port information radio telephone service to help shipping navigate the river. This v.h.f. system, which is being hired at a cost of about £1,000 a year, will be installed in the control tower at Queen's Dock and should be in operation in about six months.

## FINANCIAL RESULTS

NOTES on the trading results, dividends and financial provisions of companies associated with the transport industry are contained in this feature, together with details of share issues, acquisitions and company formations or reorganisations

## British Electric Traction

The following interim dividends have been declared by the British Electric Traction Co. Limited, for the financial year ended March 31, 1961: On the 6 per cent cumulative participating preference stock, 3 per cent (same); on the 8 per cent non-cumulative preferred ordinary stock, 4 per cent (same); on the deferred ordinary and "A" deferred ordinary stocks, 12½ (10) per cent.

## Cunard Steam-Ship

The directors of the Cunard Steam-Ship Co., Limited, have considered the question of an interim dividend for the year 1960. Trading profits were seriously affected by the recent unofficial strike of seamen which entailed cancellations of some sailings, delays to others and generally very heavy additional expenses. The directors regret that the year's results as apparent to date do not justify the payment of an interim dividend.

**SILVER ROADWAYS LTD.**  
Reliable Trunk Services to all Parts

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<b>BIRMINGHAM</b> 323 High St., West Bromwich, Staffs. WEST BROMWICH 2801	<b>CARDIFF</b> 10 Dumfries Place CARDIFF 21631	<b>LIVERPOOL</b> 11 Old Hall Street, Liverpool, 3 CENTRAL 6386
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## British Road Services

## RATES INCREASE

British Road Services announce that charges will be adjusted to obtain an overall additional revenue of 10%, with effect from 1st November 1960.

The last general increase in rates was made on 20th May 1957. Since that date costs, particularly wages, have increased considerably and British Road Services, in company with other hauliers, are now faced with new and substantial wage and salary awards. These and other cost increases are of such an extent that they cannot be absorbed and, although they are reluctant to do so, British Road Services have no alternative but to increase their charges.

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## SOCIAL AND PERSONAL

### U.K.R.A.S. Entertains

THE United Kingdom Railway Advisory Service last week gave a cocktail party in honour of representatives of the Central Treaty Organisation who had met in London to discuss such projects as the Turkey-Persia railway connection from Mus in Turkey to Tatvan, thence by train ferry along the 80-mile length of Lake Van to Van and by rail again to the frontier near Khotur and into Persia via Sharifkhaneh round the top of Lake Rezayeh. Some 120 miles of railway have to be built and financed; they will open up an area rich in mineral resources.

Dr. C. Damiano, for many years head of the central buying office of Pirelli, Limited, has retired.

Mr. Alan S. Gill has retired from the board of George Cohen Sons and Co., Limited, on attaining the age of 65, and will practise as an industrial consultant.

Mr. J. H. Richardson, hitherto traffic manager, Northern General Transport Co., Limited, and who has been appointed general manager, East Midland Motor Services, Limited, was educated at King's School, Worcester, and City of Cardiff Technical College. During the 1939-45 war he served with the Royal Armoured Corps and re-entered civil life as a B.E.T. trainee with the Northern General company. In 1949 he was made area traffic superintendent, Exeter area, for the Devon General Omnibus and Touring Co., Limited, in 1952 traffic manager, East

Yorkshire Motor Services, Limited, and traffic manager of Northern General in 1955.

Mr. R. Moorhouse has been made assistant treasurer, Eastern Region. He was formerly a traffic costing officer at British Transport Commission headquarters.

The annual dinner of the Royal Engineers Army Emergency Reserve (Transportation) will be held at the Cafe Royal, Regent Street, London, on February 24, 1961.

Hargreaves (Leeds), Limited, announces that it has been mutually agreed that Mr. R. Chappell should be released from his engagements with its subsidiary, Fred Chappell, Limited, the Batley road tank operator, and associated companies.

The President of the Board of Trade has appointed Sir William Mabane, K.B.E., as chairman of the British Travel and Holidays Association for three years. He succeeds Sir Arthur Morse on the latter's completion of six years as chairman.

Mr. M. G. Maycock, former chief civil engineer, Scottish Region, has been appointed principal of the B.R. School of Transport, Derby. Mr. H. G. Smith, principal scientific officer, British Scientific Instrument Research Association, has been appointed principal scientific officer, B.R. central staff (electric traction research section).

Viscount Tenby, P.C., T.D., will be the speaker at the annual anniversary luncheon of the Institute of Transport to be held on November 1. The Institute has in hand arrangements for a visit to Belgium (headquarters Brussels) from Monday, May 29, to Wednesday, June 7, 1961, both dates inclusive of travel from and to London.

Sir David Eccles, the Minister of Education, in consultation with the Secretary of State for Scotland and the Minister of Education for Northern Ireland, has appointed Mr. J. W. Platt, a director of the Shell Transport and Trading Co., Limited, and formerly a managing director of the Royal Dutch Shell Group, to be chairman of the United Kingdom Advisory Council on education for management.

After 25 years in railway service, the chief engineer of East African Railways and Harbours, Mr. C. T. Henfrey, retires at the end of this month. Mr. J. M. Kesson, assistant chief engineer (technical) will become acting chief engineer. At a presentation to Mr. C. T. Henfrey of parting gifts, Mr. G. P. G. Mackay, the acting general manager, presided. He regretted that the general manager, Sir James Farquharson, was not present himself to pay tribute to Mr. Henfrey's work.

Proposing the health of the Master at a luncheon following the installation ceremony of Mr. R. W. Birch as Master of the Carmen's Company, Sir John Elliot drew attention to the danger in Britain of appearing at times to pay too much attention to tradition and not letting our true capacity for enterprise and forward thinking be apparent. In his reply Mr. Birch referred to the monumental rows of former days in the haulage and bus businesses, congratulated Colonel John Pye, his predecessor, for a memorable term of office and expressed his pleasure that his son, Mr. Clive Birch, had that morning been clothed in the livery. Sir Frederick Wells, senior warden, proposed 'The Guests' and Mr. R. G. Grout, immediate past-president of the Institute of Transport, responded.

Mr. C. Birch, M.Inst.T., has been appointed assistant operating officer, North Eastern Region, B.R. He joined the L.N.E.R. in the district motive power superintendent's office at Sheffield in 1925. He received special traffic apprenticeship training and occupied several posts in the Tees-side and Newcastle areas before becoming head of the passenger trains section in the joint superintendent's, passenger manager's and motive power superintendent's office at York in 1944. The following year he became head of the freight trains section and in 1946 was appointed freight traffic officer of the central traffic office at Marylebone. In 1948 he was appointed trains assistant to the superintendent, Scottish Region. Returning to the North Eastern Region, Mr. Birch became district operating superintendent, first at Wakefield (1951) and three years later at Sunderland. He was appointed district operating superintendent, York, in 1955, and district traffic superintendent, York, in 1958, the post he now vacates.

Mr. A. V. Hichisson, publicity manager of the Westinghouse Brake and Signal Co., Limited, retires at the end of this month.

Mr. G. R. Packer, for many years general sales manager of Girling, Limited, has been appointed to the board as sales director.

Mr. D. Eyles, chief accountant, has been recommended for the post of deputy general manager and chief accountant, Sheffield Transport Department, in succession to the late Mr. C. Darwent. Mr. P. Baggaley is recommended for traffic superintendent.

The following appointments are announced by the London Midland Region of British Railways:

T. P. Strafford, to be divisional traffic manager, Manchester. W. O. Reynolds, to be divisional traffic manager, London (Midland lines).

J. H. M. True, to be divisional traffic manager, London (Western lines).

H. A. Mugliston, to be divisional traffic manager, Liverpool.



Mr. J. H. Richardson



Mr. T. Lord



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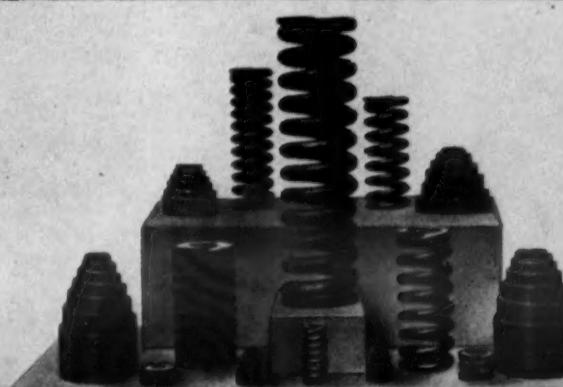


The Court of the Worshipful Company of Carmen, headed by the newly-installed Master, Mr. R. W. Birch, proceeding to St. Stephen, Wallbrook, for the installation service

Mr. H. F. Sanderson, assistant commercial officer, North Eastern Region, B.R., retired on October 28 after 39 years' service. He joined the former North Eastern Railway as a traffic apprentice at York in 1921. In 1935, Mr. Sanderson became district operating superintendent, Cambridge, and from 1936 to 1945 was district goods manager, Newcastle. In 1945 he became the first principal of the L.N.E.R. all-line commercial school at Faverdale Hall, Darlington. In 1949 he was made assistant commercial superintendent, North Eastern Region (later designated assistant commercial officer). Mr. Sanderson is the author of "Railway Commercial Practice," which was published in 1952 in two volumes by Chapman and Hall, Limited.

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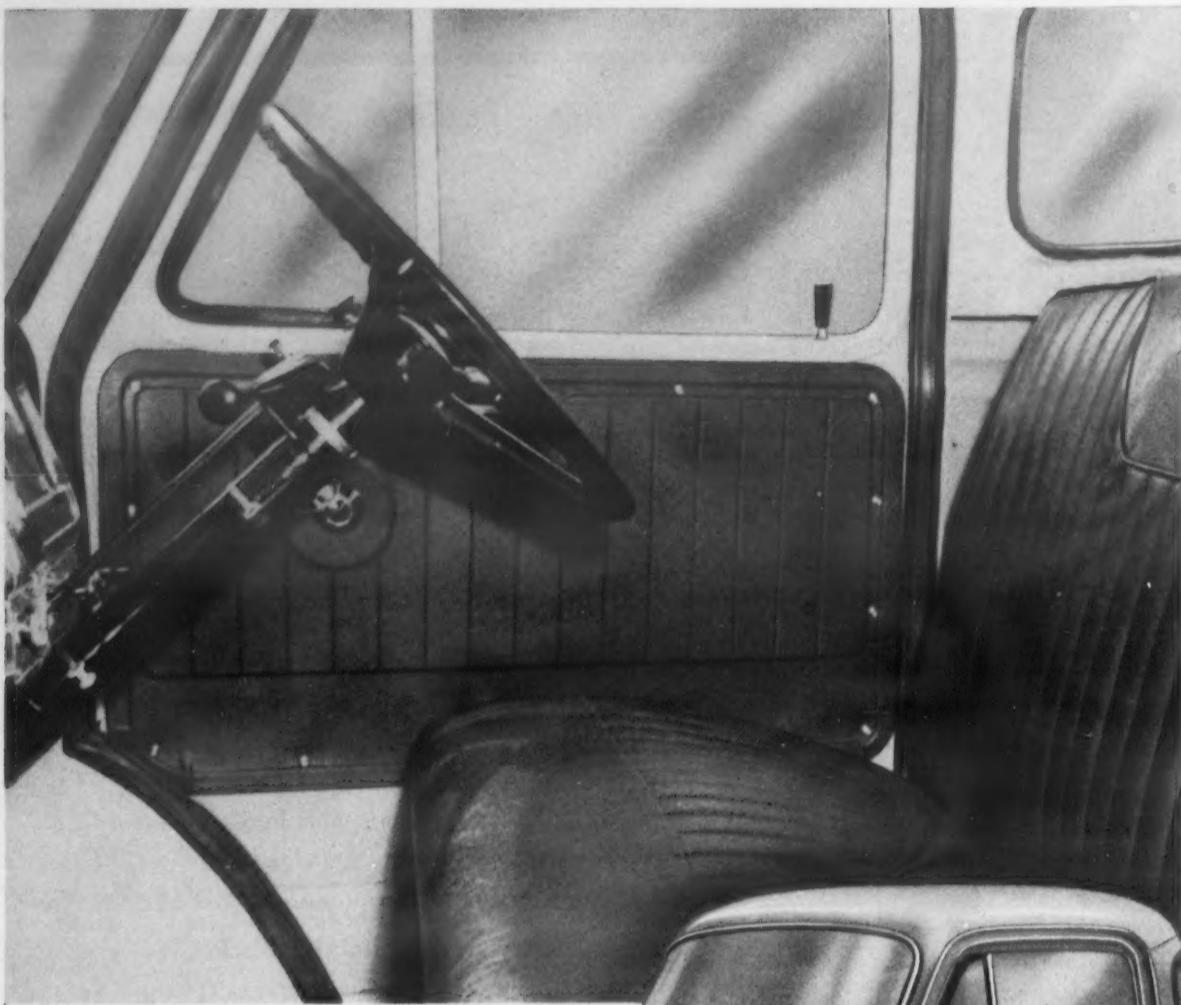
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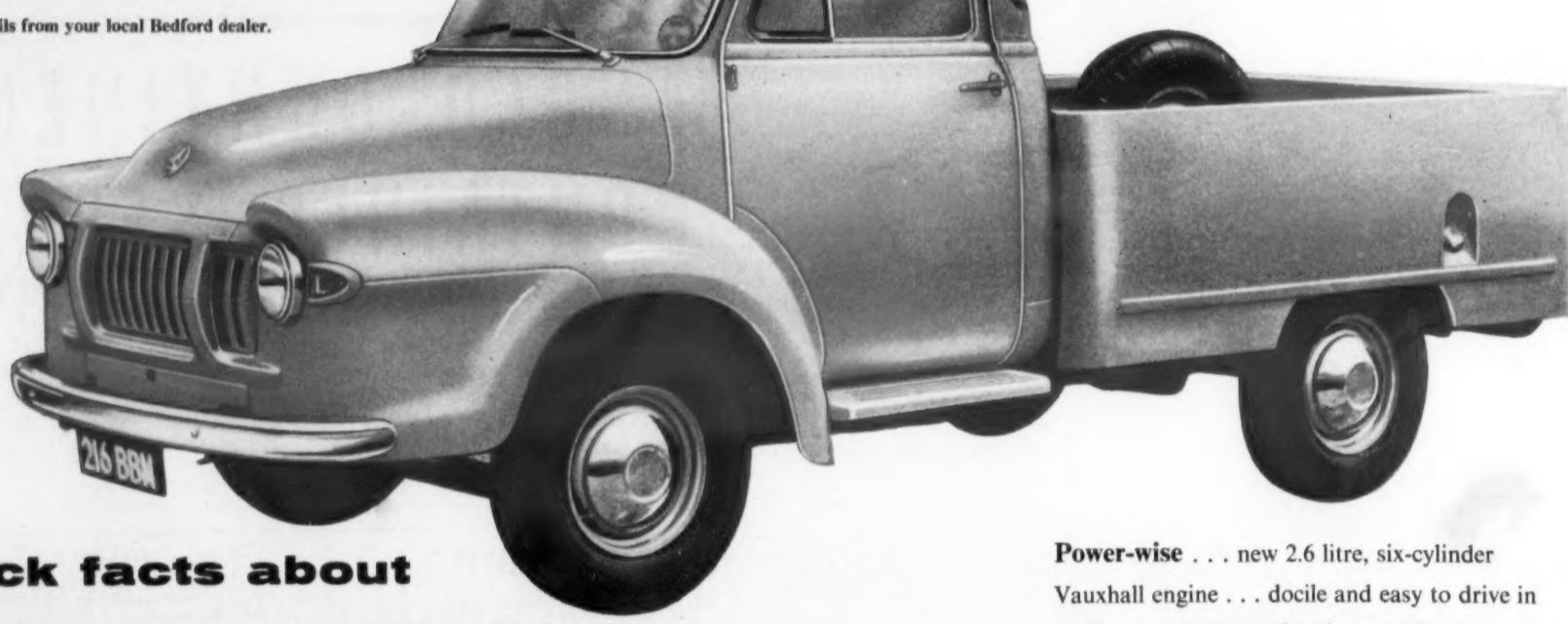
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